AUTOMOTIVE INDUSTRIES
The Automobile

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Volume 71 Number 14

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AUTOMOTIVE INDUSTRIES

Vol. 71, No. 14 ▫ THIRTY-SIXTH YEAR ▫ October 6, 1934

Basic Issues Cloud Truce Plan

Merit Clause, Proportional Representation Held Vital

by Don Blanchard
Editor, Automotive Industries

The most encouraging revelation in the President's radio address of last Sunday perhaps was that he proposed to grapple at first hand with the issues responsible for the current wave of labor disturbances which are retarding recovery, for it is felt that such intimate contact may have a salutary effect on administration labor policies. His assumption of the role of mediator-in-chief should have a powerful pacific influence as it did last March in the threatened automobile strike and it is hoped will go far to maintain the truce between management and labor which he proposed.

Possibly the conference he will hold with large employers and labor leaders may be successful in maintaining industrial peace without a determination of the basic issues at stake. But the prospect that this will eventuate are not too rosy since the battle lines have become clearly drawn and both sides have taken rather positive positions. The President's admittedly great skill as a conciliator, however, may surmount this hurdle.

So far as the automotive industry is concerned, there will probably be no indication of whether the truce and the conferences proposed by the President are to mean much or little until the automobile manufacturing code comes up for renewal early next month. Prior to that time it is anticipated that the car makers and labor will present their views on the questions at issue to NRA, and NRA in turn will submit reports to the President covering the respective viewpoints. If the reports indicate a difference of opinion cannot be reconciled otherwise, it is presumed that Mr. Roosevelt will confer separately with representatives of the manufacturers and with union leaders in an effort to reach a settlement that both sides will accept.

The car makers, however, are adamant on two points—the retention of the merit clause and the continuance of proportional representation as provided in the automobile settlement. They will not voluntarily accept an extension of the code without the merit clause, since they

W. R. Tracy, new Hudson sales head

Hudson Promotes Tracy to General Sales Mgr.

William R. Tracy, sales manager for the Hudson Motor Car Co. for many years and formerly sales manager for the Oakland Motor Car Co., has been appointed general sales manager of the company, assuming the position held by Chester G. Abbott, prior to Mr. Abbott's resignation from the company.

Mr. Abbott was associated with the sale of Hudson products for the past 21 years, both in the field and in the factory.

September 10,000 Above Estimate; Set 145,000 Units For October Total

by Athel F. Denham
Detroit Editor, Automotive Industries

Final check of automotive production for September shows a total for the industry of roughly 170,000 to 175,000 cars and trucks, which is 5000 to 10,000 units above the estimate made by *Automotive Industries* at the beginning of the month. A contributing factor to the higher schedules was the definite decision on the part of most major companies to delay new model announcements until about Jan. 1. With this in mind, production has been carried on at a fairly high comparative rate to maintain dealer stocks at sufficient volume to carry dealers over a protracted shutdown prior to new model announcement time.

In line with this policy a few companies have actually stepped up October schedules over September totals with the October estimate for the industry compiled from individual company schedules, totaling 145,000 cars and trucks. This is considerably above any estimate that might have been made for October

(*Turn to page* 403, *please*)

hold that its elimination at this time would be interpreted by organized labor to mean that the employers had lost their legal right to hire and fire on the basis of individual merit.

The attitude of the industry is just as positive on the question of representation since it is convinced that the application of the majority rule established by NLRB in the Houde case would make the closed shop inevitable. Motordom does not regard the majority rule as good law and will carry the case to the Supreme Court if necessary to find out whether it is right in insisting on proportional representation.

There are other more technical questions that may prove difficult to compromise. The President, for example, apparently envisions that the conferences he proposes will lead to agreements covering wages, hours and working conditions, and providing for mediation of subsequent differences. In the making of such agreements, it is conceivable that the question of *who* represents *what* workers may arise to complicate the discussions—in other words, the representation issue again.

Of course, it is still an open question whether the President will call automotive leaders into conference, but if he does, what he meant by "truly rpresentative of labor" and "organized labor" may have a determining influence on the outcome. If he referred to the A. F. of L., the industry's attitude will be one thing, but if he meant that representatives of all groups in the plants, unions as well as works councils, would be invited to participate in the conferences, that would create an altogether different situation. In view of the industry's position on the representation issue, the consummation of an agreement would appear extremely doubtful in the former case and very probable in the latter, at least so far as the manufacturers are concerned. However, the President's presence as mediator may prevent difficulties over this point as it did in the case of the automobile settlement when it was not allowed to prevent an understanding.

The comments of William Green, A. F. of L. president, on Mr. Roosevelt's labor proposals, however, do not indicate that the Federation is disposed to give much ground. Referring to the President's plea that fullest use be made of governmental adjustment agencies, Mr. Green said "I hope the National Association of Manufacturers responds to the President's suggestion to use the facilities of the board created by the Government." This statement, of course, referred to the NAM's advice to employers to disregard the Houde ruling for majority representation. Since majority vs. proportional representation is one of the basic issues at stake, Mr. Green's statement does not lend much hope that the Federation is disposed to do much compromising on this point.

Elijah G. Poxson
President of Reo Sales Corp. who also assumes supervision of the Reo Export Department, following the resignation of R. G. Hudson

It is interesting to note also that at about the same time Mr. Green was making the statement just quoted, a report was presented to the A. F. of L. convention denouncing the Automobile Labor Board. Although this is not a statutory agency, the President was the leading element in its creation. Concerning it, the report said that it "has failed completely to encourage real collective bargaining between the unions and the employers; its action in regard to cases of discrimination has been slow and it has consistently refused to make decisions." The report continues that the workers have received little benefit from it and under the President's settlement are denied the privileges accorded other unions under Joint Resolution 44.

Apparently the Federation regards the automobile settlement as one more agreement to be broken if it feels it can get away with it before the public. Apparently, too, Mr. Green's admonition to the NAM to accept the rulings of Federal Adjustment agencies is a one way affair that applies only to boards created by the administration which accept Federation policies. However, it seems reasonable to assume that the President's plea for a truce will strengthen the position of the ALB since it will make it harder for labor leaders publicly to justify attempts to overturn it as certainly abrogation of the settlement would not tend to promote the peace the President asks.

The reaction of the National Association of Manufacturers to the President's proposal took the form of a suggestion that both sides agree, as they did in war times, to maintain the status quo instead of trying to take advantage of the present emergency. The meat of the proposal which the NAM suggested be adopted by both sides, follows: "Neither employers nor employees in private industries and transportation systems should attempt to take advantage of existing abnormal conditions and the country's necessities to change existing labor standards in employment relations which they are unable to change under normal conditions."

Turning to other phases of the President's speech his statement that he counted on the driving power of individual initiative and the incentive of fair private profit, would have been more reassuring if there had been some indication of what he considers to be a "fair" profit. Ordinarily this would need no explanation, but the administration has indicated so frequently that it felt that the "exorbitant" profits of the "twenties" were a major cause of the present depression, that the President's assertion leaves business unconvinced. The government's own statistics of income issued by the Treasury do not indicate that profits during the last decade were unreasonably swollen.

His remarks on NRA confirm previous evidences that the future holds less rather than more restrictions on competitive forces to maintain prices and restrict output. The President was on safe ground when he said that these restrictions were approved on the insistence of business and many business men now realize that they attempted practical impossibilities. In automotive manufacturing circles, the relaxation of such artificial restraints will meet with rather widespread approbation. However, it was indicated during the week that no sweeping changes are planned in this respect and that before the price and production-fixing provisions in any code are altered, the case will be considered on its individual merits.

Another point in the President's speech of more than passing interest but which has attracted little attention in his statement, that: "Another question arises as to whether in fixing minimum wages on the basis of an hourly or weekly wage we have reached into the heart of the problem, which is to provide such annual earnings for the lowest paid worker as will meet his minimum needs." It is perhaps idle to speculate on the exact meaning of this language, but it seems evident that setting code minimums on an annual basis at least is being considered. It is conceivable in highly seasonal industries such as the automotive this might mean less severe regulation of maximum weekly hours since in such industries, it is by working longer hours during the peak seasons that dull periods are offset.

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William B. Stout points the way for creative engineers on page 408

Some Washington ideals are brought out into the open by Julian Chase on page 411

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Some of the interesting results of the Driver Fatigue Tests being made by Dodge are shown on 414

Ford Display in New York Show Assured as Dealers Draw Space

NEW YORK—Displays of Ford cars and trucks will be among the features of the 1935 Automobile Show to be staged in Grand Central Palace, Jan. 5-12, by the Automobile Merchants Association of New York. Official confirmation of earlier reports published in *Automotive Industries* that there would be a Ford display this year came when dealer representatives of the Ford Motor Co. appeared at N.A.C.C. headquarters Wednesday to participate in the space drawing with representatives of 21 other car and light truck makers.

Old-timers recall that the last time the Dearborn manufacturer participated in a show here was in 1910 in an exhibition sponsored by the American Motor Car Manufacturers Association, which consisted of manufacturers not licensed under the Selden patent. Curiously enough the manager of that show was Alfred Reeves, for many years N.A.C.C. general manager, who is managing the forthcoming show for the local dealers' association. Concerning the Ford exhibit in that show, *The Horseless Age*, since combined with *Automotive Industries*, said: "One of the prettiest cars . . . is a black Ford coupe, tastefully decorated with red ribbon," which is an interesting commentary not only on automobile showmanship but also on business paper editing of that era.

The 1935 New York exhibit will occupy three floors in the Palace. The first two floors will be taken up entirely by passenger cars with the third floor split roughly half and half between trucks and accessories.

Coming in the main entrance and moving down the center aisle, on the left one will pass in order Cadillac, Chevrolet and Plymouth, and, on the right, Chrysler, Ford and Dodge. Hudson will occupy the space at the left of the grand stairway with Studebaker on the right. Along the south wall, starting at the front, will be Packard, Buick and Olds, and, along the north wall, Graham and Pontiac. Nash will be opposite the elevators on the south with DeSoto occupying the corresponding space on the north. Second floor exhibitors will be Auburn, Willys, Reo, Pierce, Lincoln, Duesenberg, Hupp, Ford, Chrysler, Packard, Chevrolet and Cadillac. Chevrolet, Ford, Dodge, Reo and Terraplane will have truck displays on the third floor.

Max F. Wollering

Who has resigned as factory manager of Hudson Motor Car Co. His place will be filled by I. B Swegles, formerly superintendent of Inspection

W-O Gets Court Sanction To Make 15,000 Vehicles

The Federal Court has granted authority to David R. Wilson, receiver for Willys-Overland Co., to begin immediately the manufacture of 15,000 passenger cars and trucks of the Willys 77 model. No objection was raised to the application by any parties in the receivership.

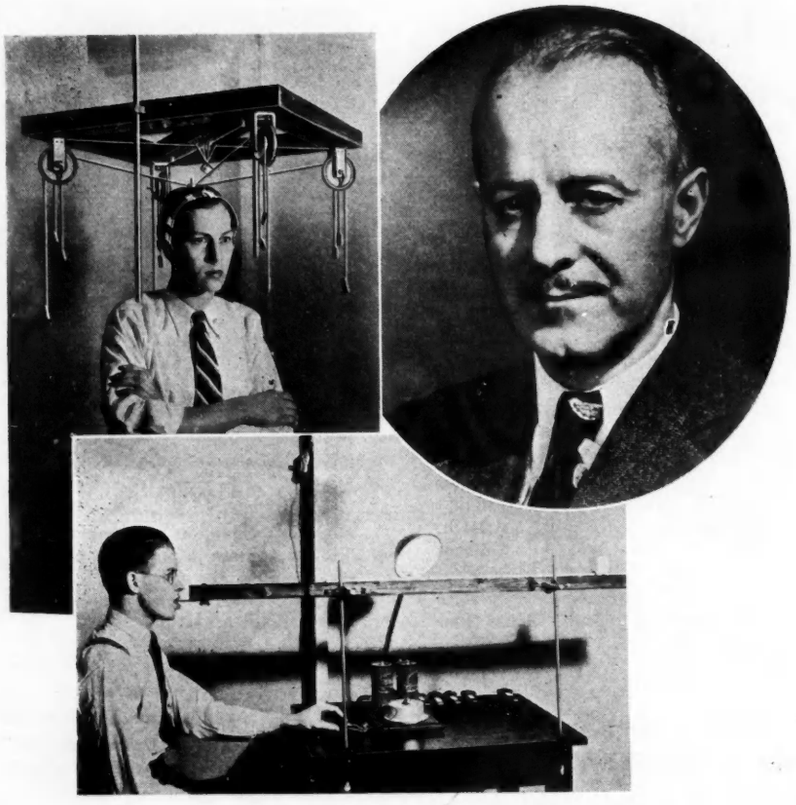
Mr. Wilson said he had 5,000 of the cars sold, and $50 down payment on each car as a starter for beginning necessary working capital. He also stated he had assurances of the sale of $150,000 of receivers' certificates if necessary to local banks. Steel orders were placed immediately after the court signed the order, but Mr. Wilson indicated it would probably be Nov. 15 before deliveries could come in such quantities as to assure steady production.

GM Enlarges Foundry

Contracts have been let for the erection of additions to the foundry of McKinnon Industries division of General Motors of Canada, Limited, at St. Catharines, Ont.

New Passenger Car Registrations—8 Months

	August, 1934	July, 1934	August, 1933	Eight Months 1934	Eight Months 1933	Per Cent change, 8 mos., 1934 over 1933	Per cent of Total, First Eight Months 1934	Per cent of Total, First Eight Months 1933
Ford	54,357	63,126	39,210	412,597	209,507	+97.1	29.10	20.01
Chevrolet	55,623	66,960	55,713	391,229	345,631	+13.2	27.60	33.01
Plymouth	33,222	38,244	32,044	230,381	163,531	+40.6	16.25	15.62
Dodge	8,438	10,021	11,244	67,863	56,288	+20.3	4.79	5.38
Pontiac	6,615	8,613	9,528	56,928	63,919	—10.9	4.01	6.10
Oldsmobile	8,549	9,188	4,047	52,066	26,253	+98.3	3.67	2.51
Buick	5,822	7,946	4,588	44,736	34,929	+28.1	3.16	3.34
Studebaker	3,652	4,745	3,202	31,288	24,631	+27.1	2.21	2.35
Terraplane	3,663	4,202	4,788	30,530	25,059	+22.0	2.15	2.39
Chrysler	2,925	3,256	4,058	19,233	20,796	— 7.5	1.36	1.99
Hudson	1,698	1,928	250	14,604	2,360	+519.0	1.03	.23
Nash	962	1,216	801	10,591	7,670	+38.0	.75	.73
Graham	1,290	1,532	1,103	9,751	7,378	+32.3	.69	.70
DeSoto	1,336	1,372	2,880	8,341	14,761	—43.5	.59	1.41
Lafayette	1,342	1,409	....	5,538	....	....	.39	....
Willys	912	938	1,415	5,033	11,771	—57.2	.35	1.12
Packard	637	840	678	4,282	6,233	—31.3	.30	.60
Hupmobile	666	692	610	4,063	4,959	—18.0	.29	.47
LaSalle	447	593	377	3,799	2,667	+42.7	.27	.25
Cadillac	309	400	357	3,644	3,002	+21.3	.26	.29
Auburn	510	602	406	3,411	3,985	+14.3	.24	.38
Reo	395	467	299	2,759	2,281	+21.0	.19	.22
Lincoln	207	158	179	1,424	1,576	— 9.5	.10	.15
Pierce-Arrow	184	220	203	1,338	1,333	None	.09	.13
Continental	17	19	403	928	1,484	—37.5	.07	.14
Austin	19	35	334	795	2,852	—72.3	.06	.27
Franklin	8	12	142	344	970	—64.5	.02	.09
Miscellaneous	23	26	76	213	1,290	—83.4	.01	.12
Total	193,828	228,760	178,935	1,417,709	1,047,116	+35.2	100.00	100.00
Chrysler Corp.	45,921	52,893	50,226	325,818	255,376	+27.6	22.98	24.39
Ford & Lincoln	54,564	63,284	39,389	414,021	211,083	+96.3	29.20	20.16
General Motors	77,365	93,700	74,610	552,402	491,162	+12.4	38.97	46.91
All Others	15,978	18,883	14,710	125,468	89,495	+40.1	8.85	8.54



Automotive Fatigue Tests

At upper right Dr. Andrew H. Ryan, noted physiologist who conducted the tests for Dodge Brothers. The helmeted young man at the upper left is undergoing the postural steadiness test, while the bottom illustration shows the subject of the visual faigue test conducted by Dr. Ryan. Athel F. Denham's story of this investigation is on page 414 of this issue

SAE Names Stout For Presidency

Widely Known Engineer To Lead Society in '35 Councilors Nominated

William Bushnell Stout, one of the industry's most widely known engineers, has been nominated for the presidency of the S. A. E. in 1935.

Councilors nominated for the 1935-1936 term are F. C. Horner, assistant to the vice-president, General Motors; H. T. Woolson, chief engineer, Chrysler, and Austin M. Wolf, consulting engineer, New York. To head the various activities of the society, the following were nominated for vice-presidencies: Aircraft—C. H. Chatfield, assistant director of research, United Aircraft and Transport Corp. of Conn.; Aircraft-engine—Philip B. Taylor, chief engineer, Wright Aeronautical Corp.; Diesel-engine—C. L. Cummins, president, Cummins Engine Co.; Fuel and lubricants—D. P. Barnard, assistant director of research, Standard Oil Co. (Ind.); Passenger car—L. P. Kalb, chief engineer, Continental Motors Corp.; Passenger-car-body—C. O. Richards, body engineer, Cadillac Motor Car Corp.; Production—V. P. Rumely, Hudson Motor Car Co.; Transportation and maintenance—T. C. Smith, engineer, motor vehicle and construction apparatus, American Tel. & Tel. Co.; Truck, bus and railcar—C. O. Guernsey, chief engineer, Brill Co., David Beecroft, manager, New York Office, Bendix Aviation Corp., was nominated for reelection as treasurer.

Mr. Stout, or "Bill" as his multitude of friends in the industry call him, over the years has come to be recognized as a leading exponent of creative engineering. Although he was chief engineer of the Schurmeier Truck Co. and of the Scripps-Booth Co. as well as having been technical editor of *The Automobile*, now *Automotive Industries*, Mr. Stout is most widely known for his accomplishments in the aircraft field. He was formerly chief engineer of Packard's aircraft division and later during the war was technical advisor to the aircraft production board. Following the war he built for the Navy what is said to be the first all-metal job produced in this country. Later he organized the Stout Metal Airplane Co. which was acquired by Henry Ford and which built the ships used on the first passenger air lines in the United States. Last year he built the "Railplane," a high speed rail car and also designed the exterior of the three-car aluminum streamlined train built for the Union Pacific. His most recent development is a rear-engined "Roadplane" which has not been shown publicly as yet.

Reported Hupp Holds Option On W-O Output

Two Other Independents Said To Be Dickering With Continental Co.

NEW YORK—Hupp has taken an option on cars to be built by Willys Overland under the latest court order covered elsewhere in this issue, according to reports current here. The reports state that the cars would be sold through the Hupp dealer organization. A survey of Hupp dealer opinion is said to be in progress to ascertain the desirability of exercising the option. If dealer reaction is favorable and the option exercised, it is rumored that changes will be made in the Willys cars, including modification of the radiator and tire carrier. Efforts to get official confirmation of these reports from interested parties have been unsuccessful.

It is also reported that two independent manufacturers are negotiating with Continental, one to take over the Continental Beacon job and revise it for 1934 production, and the other to take over the Ace model. The objective of all these rumored moves would be, of course, to provide dealer organizations with low-priced models which would give them a chance to bolster volume in today's low-priced market.

NLRB Holds Bargaining Agreements May Be Oral

An agreement between employers and workers need not necessarily be in writing to satisfy the collective bargaining provisions of the Recovery Act, the National Labor Relations Board held this week in a case involving the National Aniline and Chemical Co. of Buffalo. The Board said, however, that an oral agreement might prove so impractical that a refusal to write it down might be taken as a denial of collective bargaining rights. In the particular case, the employer posted the terms of its agreement with its workers in the shop, but refused to enter into a contract with the union. The union thereupon protested the refusal.

$250,000 Cooperative Buying Corp. Reported Launched This Week By MEWA

The first steps toward the incorporation of a $250,000 company having for its major objective cooperative buying for its jobber stockholders, are reported to have been taken this week by the Motor & Equipment Wholesalers Association. The move comes as no surprise since it has been evident for months that association sentiment was tending strongly in favor of group action along this line.

Definite proposals for the formation of the new organization are understood to have been considered by the MEWA directors at a recent meeting in Cleveland. And, although the association has made no announcement, it was apparently to these proposals that vague reference was made in the MEWA Times as reported last week in *Automotive Industries.*

At the Cleveland meeting, the directors are said to have appropriated $2,500 of the association's money to be used in the preliminary development of the projected corporation which is intended to put jobbers and their customers into a competitive position with chain stores. In addition, it is understood that the program ultimately contemplates the possible development of voluntary chains with merchandising service to jobber customers and perhaps standardized retail outlets owned by jobbers or their customers. It is planned to finance the new company by the sale of stock to jobbers who desire to participate, with MEWA members having the first opportunity to subscribe.

The projected corporation is an outgrowth of the association's contention that jobbers are at a competitive disadvantage because of the more favorable terms on which it is asserted mass distributors are able to buy. By consolidating buying power, the MEWA apparently feels that the new corporation will be able to get for its stockholders the lower prices from manufacturers which are regarded in wholesale circles as a fundamental of chain store success.

On the other hand some critics of distribution insist that whatever success the chains are enjoying is due not so much to price concessions they may be able to wring from manufacturers, as it is to their lower selling costs. These critics maintain that the chains perform wholesale and retail functions on an average gross margin of about 35 per cent on the price to retail customers. The combined wholesale-retail cost of selling through jobber dealer channels, they continue, probably runs in the neighborhood of 50 per cent on the retail price. If these figures are correct, they obviously give the chain operator a 15 per cent bulge even before any savings that may accrue to him as the result of his buying power. Consequently, these critics hold that even if group buying does give the anticipated savings, it will not provide the expected answer unless the larger over-all selling costs through jobber-dealer channels are pared at the same time. Properly operated the voluntary chain or some variation of it, may be the answer to this. In any case, if jobber-dealer distribution costs are to be reduced, many feel that the retail operation offers a potentially better field for economies than does the jobber function.

Schumann and Hutcheson NAFC Convention Speakers

John J. Schumann, Jr., president of the General Motors Acceptance Corp., and E. E. Hutcheson, GMAC branch manager, occupied prominent positions this week on the program of the tenth anniversary meeting and convention of the National Association of Finance Companies. The convention was held in the Palmer House, Chicago, Thursday and Friday.

Mr. Schumann spoke at the Thursday afternoon session when part of the program was devoted to a discussion of the future of the association. Mr. Hutcheson presided as chairman of the Friday morning session which was devoted to the problem of "Credits, Collections and Skips."

John J. Schumann, Jr.

GM Stockholders Approve Management Corp. Change

Stockholders of General Motors Corp. approved the proposed changes in the General Motors Management Corp. plan at the recent annual meeting held at Wilmington, Del.

The details of the plan for revision of the management organization were published in *Automotive Industries*, Sept. 15.

Bathrick Rejoins Pontiac Motor Co.

Don U. Bathrick, former Detroit sales manager for NBC, has been named assistant general sales manager of Pontiac Motor Co. Mr. Bathrick returns to a position he held with Pontiac up to the time of formation of the BOP Co. in 1932.

His past history includes positions as city sales manager and assistant sales promotion manager for Chevrolet; organization work in Germany in connection with GM acquisition of Adam Opel, and regional manager for Pontiac.

New Truck Registrations

August and Eight Months 1934 and 1933 Compared

	Aug., 1934	Aug., 1933	8 Months 1934	8 Months 1933	Per Cent Increase 8 Mos. 1934 over 1933	Per Cent of total eight Months 1934	Per Cent of total eight Months 1933
Chevrolet	15,790	11,455	107,420	66,485	+ 62.0	39.35	43.66
Ford	14,055	6,840	88,050	38,155	+131.0	32.25	25.06
Dodge	4,754	4,563	30,973	12,480	+148.0	11.34	8.20
I. H. C.	2,809	2,981	20,645	16,264	+ 26.3	7.56	10.68
G. M. C.	1,033	667	6,463	4,231	+ 52.7	2.37	2.78
Diamond T.	508	432	3,815	2,553	+ 49.3	1.40	1.68
Reo	439	351	3,553	1,936	+ 83.5	1.30	1.27
White	296	108	2,940	978	+201.0	1.08	.64
Mack	143	143	1,367	994	+ 37.3	.50	.65
Federal	162	134	1,315	809	+ 63.0	.48	.53
Studebaker	138	214	1,076	1,368	— 21.2	.39	.90
Brockway	107	82	872	572	+ 52.4	.31	.38
Autocar	61	127	690	692	None	.25	.45
Stewart	56	106	571	447	+ 27.6	.21	.29
Indiana	41	133	435	845	— 48.5	.16	.55
Austin	6	127	395	727	— 45.7	.14	.48
All Others	392	336	2,454	2,735	— 10.4	.91	1.80
	40,790	28,799	273,034	152,271	+ 79.3	100.00	100.00

Policies of Reorganized NRA Remain Undefined and In Speculative Stage

Manufacturers as a class are watching with keen interest the operations of reorganization and revivification being performed upon the Blue Eagle by President Roosevelt and his aides de camp. Its destiny is uncharted, but since its removal from the protecting wing of General Johnson both cloak, complexion and direction have been unmistakably altered. So far as motordom is concerned there are plenty of manufacturers who would like to see the bird fly into oblivion, for in the main it has meant nothing to them but higher operating costs and an overflowing measure of labor troubles.

But that is not to be. What the destiny of the famous bird will be, apparently no man can say. But that it has a destiny was made clear in the President's speech Sunday when he indicated that NRA would be continued in some form or other. As to policies, it would be sheer speculation to say what they will be for it is evident that they are to be determined from experience. Manifestly last week's reorganization is only a temporary affair but undoubtedly recommendations for permanent legislation made to the next Congress will be influenced largely by the performance of the new set-up.

While definite light on policies is lacking, it is felt in Washington that the administration program will tend strongly toward shorter hours with no change in wages. Probably developments along this line will be influenced to an important degree by the outcome of the controversy now on over the executive order cutting hours and maintaining wages in the cotton garment industry. Efforts to control prices and production also appear to be slated for relaxation. In his radio address Sunday, the President admitted that the wisdom of such efforts was open to question although he also correctly pointed out that many of them were undertaken on the insistence of business. On labor, the capital regards it as in a stronger position than ever before with continued protection of collective bargaining by 7A, or perhaps by a substitute that would be even more favorable to the unions.

Under the new set-up NRA leadership is vested in the National Industrial Recovery Board which constitutes the executive agency under the new program the President revealed some time ago. This program also includes legislative and judicial branches. The "legislative" branch was named last week at the same time as the new Recovery Board, and it is to be known as the Industrial Policy Committee. Nothing has been announced so far regarding the judicial agency.

The new National Industrial Recovery Board, NIRB alphabetically, is made up of persons of widely divergent social and economic views and presumably this was intentional so that the President would get a wide range of suggestions from it. For its chairman, it has selected S. Clay Williams, former president of the Reynolds Tobacco Co. and regarded as a conservative. In the same category is Arthur D. Whiteside, president of Dun & Bradstreet and a former divisional administrator of NRA. Sidney Hillman, a socialist and a well-known union leader; Leon C. Marshall, labor professor and former professor at Johns Hopkins, and Walton H. Hamilton, Yale law professor and a reputed liberal, complete the Board.

The Industrial Policy Committee has more than NRA to consider although it is charged with formulating new legislation to take the place of the present Recovery Act. It is also given responsibilities in connection with relief, public works, labor disputes and agriculture. Headed by Donald Richberg, its make-up would indicate that it will lean to the left. The members of this Committee are Interior Secretary Ickes, Labor Secretary Perkins, AAA Administrator Davis, Relief Administrator Hopkins, and the chairman of NIRB, S. Clay Williams.

Despite the formation of these committees and the delegation to them of large responsibilities, the President is expected to take a more active hand, particularly in NRA, than he has in the past. In this connection, Mr. Richberg stated that the Industrial Policy Committee was not going to run NRA but would make recommendations on policy to the President and would coordinate administration activities.

Mitchell to Attend Paris, London Shows

W. Ledyard Mitchell, chairman of the board of Chrysler Export Corp., sailed for Europe last week to attend the Paris and London automobile shows and to conduct meetings of distributors in those cities.

E. C. Morse, president; C. F. Mooney, sales manager, and C. E. Dalton, assistant director of truck sales, preceded him, sailing from New York on Sept. 22.

W. Ledyard Mitchell

NACC Makes Official Change to New Name

The National Automobile Chamber of Commerce has issued the following bulletin:

New York, Oct. 3—Effective today, by action of the Secretary of State of the State of New York, our organization becomes the

Automobile Manufacturers Association

instead of National Automobile Chamber of Commerce.

In voting for this change, the members believed the new name will more clearly indicate the composition and functions of the organization and prevent confusion with other organizations or chambers of commerce here and abroad.

STEPHEN D. BRYCE, JR.,
Manager, Information Dept.

SAE Anniversary Dinner Scheduled for Jan. 7

The 30th anniversary dinner of the S.A.E. will be held at the Hotel Commodore, New York City, Jan. 7, during the week of the New York Automobile Show. At this dinner formal announcement of the officers elected for 1935 will be made.

For the third consecutive year, an engineering display will form part of the Society's annual meeting which will be held in Detroit Jan. 14 to 18. Early reservations by manufacturers of materials and fabricated products indicate that all available space in the display will be occupied. The exhibits will be placed in the Book-Cadillac Hotel, where the annual meeting sessions are to be held, and will extend through the whole period of the meeting.

Included in the annual meeting program will be a dinner under the joint sponsorship of the general society and the Detroit Section. Plans for this, and the other events in the January calendar of the society are maturing rapidly under the direction of Alex Taub, chairman of the general meetings committee, under the authority of the president, D. G. Roos, and the S.A.E. council.

Evans Products Co.

Evans Products Company has reported net profit of $44,056 for the month ended July 31, and net loss of $30,010 for the month ended Aug. 31. Both of these figures are after all charges including Federal tax and bring the cumulative earnings total for the just eight months of the calendar year to $1,284,207. This is equivalent to $5.26 per share on the 244,196 shares of common stock outstanding.

Cowling in Action

Ford's sales director (right) giving W. R. Campbell (center), president of Ford of Canada, the low-down on something or other. At the left is A. S. Hatch, Lincoln sales manager. The picture was made at a recent breakfast meeting at the Palmer House, Chicago

Automobile Insurance Rates Reduced in N. Y.

State - Wide Casualty Revision, First Since 1932, Saves 2 Million

Revised automobile liability insurance rates will save New York State owners $2,000,000 annually it is estimated by officials of the New York Insurance Department. George S. Van Schaick, Superintendent of Insurance, approved the new rates Oct. 1.

The new rates affect all casualty companies, and are the result of negotiations carried on by the state insurance department with the rate making organizations. This is the first state-wide revision in automobile casualty rates since March, 1932, and follows the reduction in automobile fire and theft insurance rates effective last August.

The new combined public liability and property damage insurance rates, depending on the location from which the vehicle is registered, range from $34 to $119 on low priced cars; the same for medium priced cars, and from $50 to $123 on high priced cars. Rate on commercial cars and trucks range from $90 to $371 on heavy load capacity; from $69 to $314 for medium capacity, and $42 to $198 for light load capacity vehicles.

Tire Price Rule Expires; Renewal Declined by NRA

Despite a request from the Tire Code Authority for continuance of the order fixing minimum floor prices on tires, NRA officials permitted the order to automatically expire on Monday, Oct. 1, the expiration date fixed in the order.

NRA officials declined to continue the rule, it is reported, on the ground that the request came at the last minute, and that they refused to be rushed into a new order. However, it was indicated that should a price war develop as a result of the order's expiration NRA would then consider renewing the rule.

Knudsen's Mother Dies

In New York, preparing to leave for a six weeks' tour of Europe, visiting General Motors plants and the Paris and London Shows, W. S. Knudsen, executive vice-president of the corporation, received word of the serious illness of his mother in Copenhagen, Denmark. Mr. Knudsen commandeered the fastest transportation available, but Mrs. Knudsen died two hours before he reached her bedside. She was 81 years old. Mr. Knudsen had planned to visit her while abroad, but had no previous inkling of her illness.

Chevrolet Gets First Choice at N. Y. Show

Chevrolet, as it has for a number of years past, had first choice of space at the New York Automobile Show, company officials in Detroit revealed following the annual drawing held in New York on Wednesday of this week. As is generally known, the order of drawing is established on the basis of dollar volume of the exhibitors, the manufacturer with the largest sales having first choice.

Guide Lamp Loses Eagle on NLRB Plea

GM Vehicles Equipped With Products Outside the Government's Pale

NRA has deprived the Guide Lamp Corp., General Motors subsidiary, of its Blue Eagle in accordance with the recommendation of the National Labor Relations Board. The major practical significance of the removal is that motor vehicles having equipment produced by Guide will not be eligible for purchase by the Government under the executive order requiring that all materials purchased with Federal money be produced under the Blue Eagle.

In announcing the removal of the Guide Blue Eagle, NRA said:

"The Guide Lamp Corp. refused to recognize the Metal Polishers International Union, Local No. 52, as the exclusive bargaining agency of the employees in certain departments, after that union had won an election by 329 votes to 286 for the Guide Employees Association. The National Labor Relations Board, in its opinion, cited a letter written by the company to the Union last October, when the company claimed that the Association represented a majority of its employees. The letter declared:

" 'If we begin the practice of negotiation with each group which presents itself, we will not be complying with the provisions of the NRA, and a great deal of confusion would result. If there is any complaint or grievance which you wish to present, we shall be glad to consider it, but any negotiation or collective bargaining must be with the committee representing the great majority of our employees.' "

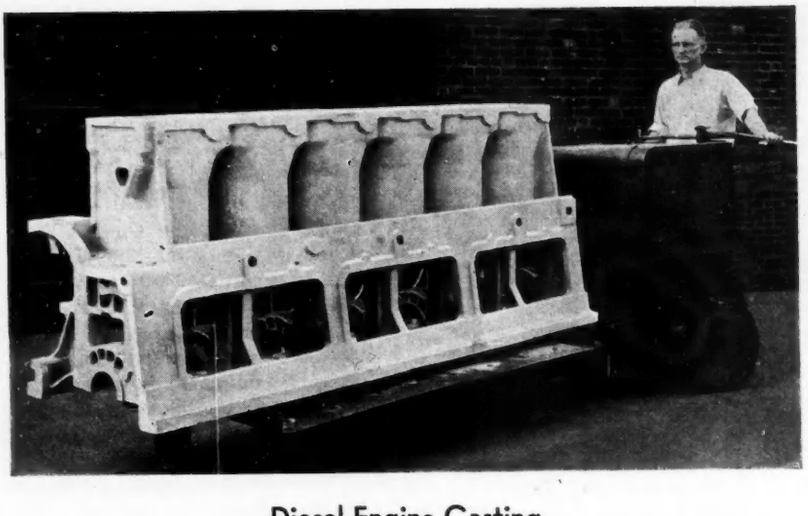
Apparently very little consideration has been given as yet except perhaps speculatively to the possible loss of Government orders by customers of Houde Engineering Corp. (Shock absorbers) and Guide Lamp Corp. (lamps, etc.).

Government suppliers are, of course, required to certify that they operate under the Blue Eagle and that all material in products supplied are produced under the Blue Eagle. Since the NRA insignia has been recalled from both Houde and Guide, this would make cars, trucks, etc., on which their products are used, ineligible for Government business.

Houde's largest customer is the Ford Motor Company, but Ford has two other sources of shock absorbers and would thus be able to quote on Government orders if it were not for the fact that Ford has no Blue Eagle either. Guide Lamp's largest customers are the vehicle divisions of the General Motors Corp., of which Guide is a subsidiary.

It is not likely that any immediate effect would be felt by these units, since Guide undoubtedly has built up sufficient stocks of parts in past months while operating under the Blue Eagle to carry any Government business in immediate prospect.

However, should the loss of the Blue Eagle prove of serious consequence to either Guide or Houde, it is considered in Detroit that relief might be sought from the courts. Employers in other industries who have lost their Blue Eagles have followed this procedure, entering a plea for a temporary injunction pending the hearing of the case.



Diesel Engine Casting

The gigantic casting was made by the Bohn Aluminum & Brass Corp. for the Ingersoll Rand Co. Made from aluminum its weight was reduced to 1640 lb. from more than 3000 lb.

Robinson Briggs Director; Extra Dividend Declared

W. D. Robinson was elected to the board to fill the vacancy caused by the death of James Q. Goudie.

Directors of Briggs Manufacturing Co. have declared an extra 25 cent dividend in addition to the regular payment of 25 cents on the outstanding no par stock, both dividends are payable Oct. 30 to stock of record Oct. 16.

Calvin W. Rice

Calvin W. Rice, widely known in engineering circles and secretary of the American Society of Mechanical Engineers for 28 years, died this week of a cerebral hemorrhage. Dr. Rice was a member of many international engineering societies and a member of the Engineers Club of New York. He was 65 years old.

Hupp Meeting Oct. 10

For the second consecutive time the stockholders' meeting of Hupp Motor Car Corp. has been postponed because of insufficient proxies. The meeting scheduled for Wednesday, Oct. 3, will be held Oct. 10.

Chevrolet Plant Burns

Chevrolet Motor Company's mill, located in the rear of the Fisher Body Company No. 2 plant at Flint, was destroyed by fire early this week. Chevrolet officials declined to estimate the loss, but it is believed the damage will amount to several thousand dollars. Firemen worked for three hours to keep the fire from spreading to the Fisher duco plant, a block away.

Automotive Chemical Specialties Code OK'd

The code of fair competition for the automotive chemical specialties manufacturing industry has been approved by NRA and becomes effective Oct. 7. The code establishes open price filing and prescribes ten fair trade practice rules.

Ford Has 17,950 Visitors

During the 23 working days of August 17,950 persons inspected the Rouge plant of the Ford Motor Co. This means that approximately 700 persons daily spent an hour following the mile long assembly line observing assembly of Ford cars.

Miss Graham Betrothed

The engagement of Miss Virginia Graham, daughter of Mr. and Mrs. Joseph P. Graham, to John A. Healy, Red Bank, N. J., has been announced. Miss Graham's father is president of the Graham-Paige Motors Corp. No date has been set for the wedding.

New Pontiac Broadcast

Pontiac's new radio program featuring Frank Black, Jane Froman, the Modern Choir, and a 40 piece symphony orchestra, made its debut last Sunday night. This half hour program will be heard regularly each Sunday night over the National Broadcasting System.

Federal and Fargo Cos. Get Army Truck Orders

Federal Motor Truck Co. and Fargo Motor Corp. have received contracts from the War Department for 492 trucks costing $915,757. Federal will build 250 of the vehicles at an average price of $2,354 for a total of $558,515. The Fargo company's contract calls for 242 trucks at an average price of $1,476 for a total of $357,242.

Major General Louis Bash, quartermaster general, in announcing the contracts said that the total value of contracts awarded by the War Department for trucks is $1,552,358 for 849 vehicles. The remaining business, after the Federal and Fargo contracts, was divided into seven orders of varying sizes.

Atterbury to Reorganize Under New Bankruptcy Act

The Atterbury Motor Car Co. has petitioned the United States District Court at Buffalo for permission to reorganize under the provisions of the new Bankruptcy Act. Federal Judge John Knight has set Oct. 29 for the hearing, and ordered all creditors and stockholders of the company to appear and show cause why the petition should not be granted.

James R. Spraker, president of the Atterbury company, has notified all stockholders and creditors of the company of the petition. At the same time the court has ordered the petitioner to continue in full control of all property and assets, and to continue operation until final disposition of the petition.

Auto - Lite Plans Hiring 1300 Additional Workers

The Electric Auto-Lite Co., swinging into production on its Chrysler contracts, expects to add 1,300 workers during October and have about 2,500 on payrolls at the end of the month, company officials have indicated. Moto Meter Gauge & Equipment Corp., its affiliate, also will add about 1,000 workers during the month.

Biggers on Housing Board

John D. Biggers, president of Libbey-Owens-Ford Glass Co., has been named a member of the advisory board for the Federal Housing administration in Washington.

Continental Gets U.S. Order

The United State Ordnance Department has awarded Continental Motors Corp.'s aircraft engine division orders aggregating more than $290,000. These orders are for radial type engines to be used in tanks and combat cars.

September 10,000 Above Estimate

(*Continued from page* 395)

as recently as two weeks ago, and while it may not be reached should not be far from the final total when the month is out.

The decline from September is largely occasioned by actual shutdowns for changeovers on new models in a considerable number of plants, only a portion of the decline actually representing reduced manufacturing schedules, with continuing production. At the present time it appears as if major producers will be closed this fall for periods ranging from three to six weeks prior to new model production.

Furthermore a considerable number of manufacturers will be in production on new models for several weeks prior to announcement time.

Thus dealers will be given apparently every opportunity to dispose of car stocks well in advance of new model announcement time.

So far only one set of new models—from an independent manufacturer—are definitely scheduled for announcement prior to Nov. 15, but it is not expected that these models will incorporate radical changes over present lines.

Dodge Bros. reports a jump of 10 per cent in domestic retail deliveries week ending Sept. 29, the total of 4412 including 1182 trucks and 1378 Dodge passenger cars.

Dealer stocks of new cars underwent further contraction in the month just ended. On Sept. 1 they are estimated to have amounted to 324,000, or roughly 10 per dealer, as compared with 342,000 on Aug. 1 and with 227,000 on Sept. 1, 1933. At the first of the present year, dealer stocks were down to about 120,000 due to the delays which so many makers experienced in getting their new models into production.

Railroads Would Boost Motor Bill $3,409,901

The NACC, through J. S. Marvin, manager of the Traffic Department, reports that increased charges on shipments of passenger cars were listed at $1,999,724; trucks, $173,495; dissembled cars and parts, $1,236,682, a total of $3,409,901 in the railroads' presentation of their case for higher freight rates before the Interstate Commerce Commission this week in Washington.

There also would be, in addition, a new charge of one dollar for each shipment covered by an "order" bill of lading, according to the NACC announcement. Car and truck tires would pay an increase of $252,959; petroleum oils, refined and all other gasolines, $6,780,822, the report states. The figures were disclosed in a factual exhibit that itemized the increase in revenue expected from various commodities based on shipments in 1933, submitted by D. T. Lawrence, chairman, Traffic Executives.

Shoemaker and Probst Address Pitt. Section

John H. Shoemaker, commissioner of the Leaf Spring Institute, and Karl K. Probst, consulting engineer for the Leaf Spring Institute, were the speakers at a meeting this week of the Pittsburgh Section, S. A. E. The discussion subject was "Independent Springing with Leaf Springs." The dinner and meeting were held in the Hotel Schenley.

RFC Approves $150,000 Loan to Logan Gear Co.

The RFC has approved the application of the Logan Gear Co. of Toledo, O., for a loan of $150,000. This is one of five industrial organizations in Ohio to receive such a loan. Logan Gear holds extensive orders for its products but lacked the necessary working capital to complete production of the orders.

Jeritza on Ford Program

The first of the series of the Ford Motor Co.'s symphony concerts under the direction of Victor Kolar will be broadcast over the Columbia system, Sunday night, Oct. 7. Maria Jeritza, noted Viennese soprano and former star of the Metropolitan Opera Company, will be the guest soloist.

High School Girl Wins Ford Co. Essay Contest

June Mason, 14-year-old Durango High School sophomore, was presented with the Ford V-8 stock car which won the annual Labor Day Pike's Peak climb, for her essay on "Why the Ford V-8 is the Fastest-selling Car in America Today."

Matheson a Grandfather

A son was born to Madame Jan Pieter Adolf Teding von Berkhout, Ardenhout, The Netherlands, Sept. 21. Madame von Berkhout is the daughter of Charles W. Matheson, general sales manager of Graham-Paige Motors Corp.

Eight Months Exports Nearly Triple '33 Total

Automotive exports for the first eight months of this year reached a dollar value nearly three times greater than that of the January-August value for 1933. Total figures on the first eight months of this year were $140,434,562 against $57,106,323 for the corresponding period of last year.

In the break-down of these totals, passenger cars and chassis exported during the January-August period totaled $60,296,412 compared with $22,189,158 for the same eight months one year ago; the truck division showed a corresponding increase with a total of $29,846,113 against $10,506,547. Parts and accessories likewise showed an appreciable increase for the period of this year under review with a total of $28,864,815 against $12,784,539 for last year.

New Company Organized From Gears & Forgings

Gears & Forgings, Inc., which has been in receivership since April, 1932, has been reorganized under the name of Ohio Forge and Machine Corp. This new company will operate the former Ohio Forge and Van Dorn Dutton divisions of Gears & Forgings, Inc.

Officials who will direct the new company are: F. H. Chapin, president of the National Acme Co. as chairman of the board; S. C. Dalbey and J. M. Clem, as president and vice-president respectively; H. B. Newell, executive vice-president; T. E. Leighton, secretary-treasurer; R. B. Tripp, general sales manager.

Harry E. Henry

Harry E. Henry, in charge of the northeastern section of Ohio for Ex-Cell-O Aircraft & Tool Corp. died suddenly a short time ago at his home at 1240 Bender Ave., Cleveland, Ohio. Mr. Henry represented Ex-Cell-O for many years in the Cleveland territory and in recent years had also represented their Continental and Krueger-Wayne Divisions.

August Payrolls Up Despite Output Drop

	Federal Reserve Index Numbers 1923-1925 = 100 August, 1934	July, 1934	August, 1933
Seasonally Adjusted			
Production	61	78	60
Employment	92	95	69
Unadjusted			
Production	67	82	66
Employment	92	98	69
Payrolls	76	71	56
Derived Indexes (Unadjusted)			
Pay per Worker	83	72	81
Pay per Vehicle Produced	113	87	85
Employment per Vehicle Produced	137	120	104

The Horizons of B

THE effects of the President's latest fireside chat can best be described by dividing the adult population of the country into two groups. The first will include the upper 5 per cent of the population, the basis of division being wealth and intelligence. The second group will contain the remaining 95 per cent. In the former we will find the business leaders, bankers and propertied citizens. In the latter we will find the farmers, the workers, government employees, the millions on relief and a daisy fringe of visionaries. The speech sounded like a dud to the first group but rang like the message of an inspired prophet to the second.

This is an unfortunate schism within the land, for the first and smaller group contains the leaders and men of wealth who devise progress and are the true shepherds of recovery, while the second group, though sheep, nevertheless cast the votes which choose our lawmakers.

The speech itself is a neat effort, one of the best which the President has put forth. If the listener can be persuaded to park his critical faculties in the paper basket and draw an opaque curtain across his memory the words pour forth in a pleasing symphony of idealism. They breathe a sincere desire to promote the material welfare of the land.

The Qualifying Background

In appraising the speech it is necessary to bear certain facts in mind. The first and most important is the coming election. When the President returned from his summer vacation business had already started down that slope on which it is still slipping so disconcertingly today. The electorate with inexorable finality has always held the political party in power responsible for its economic fortunes. Since the President in his frank utterances had already anticipated this liability it was assumed that he would be forced to produce his silk hat once more and pull forth another bewildering array of rabbits, billiard balls and Japanese lanterns to divert the populace. The speculative elements, it was felt, would require another shot of coke. The post-vacation program started with a renewed defamation of business leadership and an acceleration of silver purchases.

Playing in Luck

It soon appeared that certain powerful and partly unforeseen factors were operating to preserve the President from the fate which normally attends a prophet whose influence with Providence has suffered. In the first place, Franklin Delano Roosevelt had lost none of his personal popularity with that 95 per cent of the electorate which casts an overwhelming majority of the votes. In the second place, the political convertibility of relief had been underestimated.

Many families were getting more on relief than they had ever received while working. They were not the kind of voters who were likely to examine critically the more remote economic and social consequence of Federal generosity. It is safe to say that the four million families now on relief yield at least ten million votes. Who will say that as much as 1 per cent of this total will be cast against the President's supporters or against the New Deal? Maine provides a convincing answer. The current campaign is being waged not on pro and anti-New Deal lines, but preponderantly on lines of competitive Federal solicitude for the distressed. For these reasons the President feels that he can remain a Gallahad and eschew the role of a Merlin.

Conservative But Disappointing

After making full allowances for the disappointment of the tories the speech nevertheless appears more conservative than most detached observers had expected. The approving references to Great Britain's record and a restatement of the right to profits are regarded by the simon pure left-wingers as reactionary taint left upon the President by the business leaders who called upon him at Hyde Park. How long the insubstantial conservative sympathy evident in this last speech can resist the brain trusters who enjoy the President's confidence at the capital and how it will survive the deluge of Chris Kringles which the next election is about to project it is difficult to say.

The speech yields a number of distinct items, some of which may be placed on the asset side of the

Business

by Joseph Stagg Lawrence

balance sheet, some on the liability side, while still others are neutral. It is likewise necessary to classify the omissions with which the speech abounds.

The Asset Items

First on the asset side is the lip service to the principle of profit. "We count, in the future as in the past, on the driving power of individual initiative and the incentive of fair private profit . . ." The master here joins the chorus of his pupils, Kennedy, Dickenson, Tugwell, Perkins, Richberg and Roper, who have on various occasions during the last two months declared the New Deal's tolerance of profits.

Second, we would place the recognition, already bruited about, that production control and the various price-fixing devices in the codes have been less than successful. This, not unfairly, sums up all the assurance that business could find in the speech.

It Must be Popular

On the other side are the prejudicial references to the financial community which have been a feature of all his speeches. In speaking of England's refunding operations that enabled the Exchequer to save $150,000,000 a year the President added: "And let it be recorded, my friends, that the British bankers helped their government." This was a gratuitous and unmistakable slap at the American banker.

It would have been fair to add that the British Government did not ask British bankers to underwrite a continuous deficit, that American banks already hold more Government bonds than is prudent, that they have cooperated with the Treasury in every way. They have offended the high priest of the Administration only in their failure to offer unqualified intellectual obeisance before the altar of the New Deal.

While it is true that England abandoned the gold standard before we did, the action was taken after their reserves had sustained an international run. America left the yellow standard at a time when her reserves were near their all time peak. The offense of the American banker is compounded by his failure to make liberal loans in the interest of recovery. That borrowers must first be found who offer a reasonable prospect of repayment is an answer which Washington until recently has considered an artful subterfuge.

Adding to Uncertainty

Among the neutral items may be noted the proposal for a truce between labor and capital. The therapeutic virtue of an armistice upon industrial strife can be determined only after the conditions are known. The truce may come too high. It is reasonably certain, for example, that labor would cheerfully grant such a respite if the 30-hour week were generally applied with a rise in the rate of pay to compensate for the reduction in hours. To this condition must be added a recognition of organized labor and an authoritative definition of 7A, which establishes the labor union as the only bargaining agency of the worker. On the other hand, if the President should say that labor has already made sufficient gains to justify a halt upon further aggression, the judgment would be hailed as a real boon to recovery. To expect such a judgment, however, is to confess a lack of realism.

The proposed elimination of the unemployed is another matter which increases rather than diminishes the apprehensive perplexities of the business executive. The business man is justified in assuming that this refers to a nation-wide application of unemployment insurance under which business will be expected to bear the full cost. The President's Hyde Park huddles with Tugwell and Hopkins concerned the social legislation which he intends to introduce into the new Congress. Is it likely that either of these boys urged the wisdom of having the workers contribute a part of the cost of providing for themselves when they are idle?

Articulate Silence

The speech was significantly silent about monetary policy, relief, public works, the balancing of the budget and the limitation of the public debt. The stock market read the speech and sold off. The market was saying, subtly, to be sure, "A fireside chat with the President and the future of investments looks more depressing."

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

Trade reports last week continued to indicate fairly encouraging trends. Retail business was hampered to some extent by unfavorable weather, but was nevertheless maintained in reasonably good volume. Wholesale trade decreased slightly. Industrial activity showed no pronounced trend, but in most lines compared favorably with that a year ago.

Car Loadings Slip

The volume of railway freight traffic declined slightly during the week ended Sept. 22. Loadings during that period totaled 643,120 cars, showing a decrease of 2866 cars, or 0.4 per cent, from the total for the preceding week and a decline of 16,746 cars, or 2.5 per cent, from that for the corresponding period last year.

Power Output Declines

Production of electricity by the electric light and power industry for the week ended Sept. 22 was 0.5 per cent smaller than that in the corresponding period a year ago. The preceding week's total was 1.8 per cent below that for the similar period last year.

Lumber Shipments Gain

New business booked at lumber mills during the week ended Sept. 22 was the lowest for any week since July, except for the week ended Sept. 1. Shipments were heavier than those during the two preceding weeks but lower than those in any week of August. Production was slightly below that for the preceding week.

Crude Production Down

Average daily crude oil production for the week ended Sept. 22 was 2,448,000 barrels, showing a decrease of 40,100 barrels from the figure for the preceding week, but an excess of 106,300 barrels over the Federal allowable figure, which became effective on Sept. 1. The current figure compares with 2,487,000 barrels a year ago.

Export Values Rise

Merchandise exports in August had a total value of $171,965,000, as against $161,655,000 in July and $131,473,000 in August, 1933. Imports amounted to $119,515,000, as compared with $127,229,000 a month earlier and $154,918,000 a year ago.

Construction Moves Forward

Construction contracts awarded in 37 states in August, according to the F. W. Dodge Corp., were slightly larger than those reported for July and 13 per cent above those for August, 1933.

Factory Employment Up

Factory employment in August, according to the Department of Labor, was 1.0 per cent larger than in July, while payrolls gained 3.0 per cent. Employment now stands at 79.4 per cent, and payrolls at 62.2 per cent, of the respective averages for the three-year period, 1923-1925.

Fisher's Index

Professor Fisher's index of wholesale commodity prices for last week stands at 80.1, as against 80.2 a week before, 79.9 two weeks before, 80.2 three weeks before, and 79.7 four weeks before.

Federal Reserve Statement

Federal Reserve bank credit outstanding decreased $3,000,000 during the week ended Sept. 26, with a gain of $1,000,000 in open-market purchases more than offset by decreases of $2,000,000 in discounts, $1,000,000 in government securities, and $1,000,000 in other Reserve bank credit. The monetary gold stock increased $4,000,000, and member bank reserve balances $81,000,000, while Treasury cash and deposits with Federal Reserve banks decreased $63,000,000, and money in circulation $9,000,000.

C. S. Mott to Marry Miss Ruth Rawlings

Charles S. Mott, G. M. vice-president, will marry Miss Ruth Mott Rawlings, daughter of Dr. and Mrs. Junius A. Rawlings, of El Paso, Tex. This will be Mr. Mott's fourth marriage. Miss Rawlings' parents have announced the wedding will take place Oct. 13 in the Texas city, where the bride and her family are socially prominent.

Mr. Mott's first wife, the former Ethel Culbert Harding, died in 1924. In 1927 the G. M. official married Mrs. Mittie Butterfield Rathbun, who died a year later from a throat infection. The third Mrs. Mott was Mrs. Dee Van Balkom Furey, from whom the industrialist was divorced about a year after the wedding.

Plan Coordination Study of Rail and Road Traffic

It is reported that the International Chamber of Commerce is about to conclude an inquiry on the coordination of rail and road traffic. Conditions of public transport in 41 countries were studied. A new committee has been appointed to continue the work and to seek an arrangement between the railroads and the road-traffic interests from the international standpoint.

Stokowski to Inaugurate New GM Radio Broadcasts

General Motors Corp. will continue under its own sponsorship the symphonic radio programs begun last year by the Cadillac Motor Car Co., Alfred P. Solan, Jr., G. M. president, has announced. The new series, to be known as the General Motors Symphony Concerts, will be broadcast each Sunday evening at eight o'clock by the National Broadcasting Co.

The program will feature a symphony orchestra under the direction of some of the most famous conductors in the world. A soloist will appear with the guest conductor each week. Leopold Stokowski, musical director of the Philadelphia Orchestra, will open the series with Richard Crooks, Metropolitan Opera Company tenor, as the soloist.

A. O. Smith Corp.

The A. O. Smith Corp., though reporting a net loss of $250,000 for the fiscal year ending July 31, ends the year in a stronger financial condition than at the close of business, July 31, 1933. The company's net loss was cut from $1,931,390 last year to the quarter million figure already quoted for this year. An increase of approximately $1,000,000 in current assets was reported over 1933. This year's total current assets were $8,744,547 against $7,632,722 last year; total current liabilities as of July 31 were $2,097,462 against $1,856,888 in 1933. Working capital as of July 31 was $6,647,085, compared with $5,775,834 for last year.

Current Assets	1934	1933
Cash	$ 681,798	$ 323,377
Notes and Accts. rec.	1,122,858	1,052,575
Inventories	3,521,018	2,783,682
Life Ins. (C.V.)	507,066	465,594
Accrued int.	23,300	29,248
Marketable securities	2,888,507	2,978,246
Current Liabilities		
Notes payable	500,000	.....
Accounts payable	446,338	634,807
Payroll	191,089	220,293
Dividends payable	10,488	10,904
Accrued fed. tax	290,318	305,474
Oblig. to retire P.S.	659,230	685,761

C. W. Studebaker

Clement W. Studebaker, son of Henry Studebaker, one of the founders of the Studebaker Corp., died in South Bend this week of a heart attack. He was 73 years of age. For nearly a decade Mr. Studebaker had taken no active part in business, and never had been directly interested in the corporation bearing his family's name. He is survived by a daughter, Louise.

Automotive Demands Bolster Steel Output

Finishing Departments Increase Operations; Price Agitation Quiets

Demands from motor car manufacturers and parts makers for sheets, strip steel, cold-finished bars, and bolts and nuts continue to show moderate gains. However, most of the business is of the odds-and-ends type. Automotive demand this week is in striking contrast to the picture of the steel industry as a whole which, according to the American Iron and Steel Institute's report, is employing only 23.2 per cent of capacity, as compared with 24.2 per cent last week.

Finishing departments in most of the steel making districts have stepped up operations, and where they have not are holding their own. Deep-drawing material is coming in for growing demand. The importance of steel holdings of automotive consumers are being unduly exaggerated.

Over-emphasis is being laid on reports that Ford steel stocks aggregate 200,000 tons. Assuming this guess to be correct, the tonnage entailed would represent five per cent of the current yearly automotive consumption of steel at the most. One market commentator appraises the value of the Ford steel stocks at $5,000,000 to $6,000,000 and scents apprehension of inflation in this accumulation. In all probability part of this accumulation of steel in semi-finished form is due to preparations for putting into operation the new automatic rolling mills that are being constructed for Ford.

Although there is no longer quite so much agitation over prices as there was a few weeks ago, not a few large steel consumers still cling to the view that prices are due for downward revision, if changed at all. Aside from the physical obstacles to the stocking of steel on a large scale, the market outlook, therefore, can hardly be alluring to those who are apprehensive of inflation. Stocks of unwrought steel in consumers' hands have always been a convenient theme for comment on otherwise dull days, but have never been a major problem, and are not so now.

Pig Iron—A slightly firmer tone in the scrap market has not been lost on sentiment in the pig iron trade. Transactions are largely of a routine character and unimpressive in tonnage involved.

Aluminum—The price of 98½ to 99% pure, remelted aluminum has been lowered ¼ cent per pound to 17½ cents. The market for virgin metal is unchanged.

Copper—Assurance that the Code would continue in operation, attained through the handing over of the market temporarily by the primary producers to the custom smelters and secondary producers, has not increased consuming demand. Makers of copper and brass ingots have lowered their prices ½ cent per pound in the hope of stimulating demand. "Blue Eagle" copper prices remain unchanged.

Tin—Lower Sterling exchange rates caused Straits tin to decline to 50.85 cents at the beginning of the week. Many buyers, of the belief that Sterling will before long return to the old parity of $4.86, are waiting for 50 cent tin before covering current needs

Lead—The leading producer restricts sales to the basis of average market price during the month of shipment. The market is firmer.

Zinc—Dull and easy.

Axle Shaft Budgetary Authority Asked of NRA

The code authority for the replacement axle shaft manufacturing industry has requested authority to submit a budget and to support it with assessments on members. Objections or suggestions should be submitted to Deputy Administrator Jo G. Roberts, Room 4321, Department of Commerce Building, before Oct. 8, 1934.

Charles M. Runyon

Charles M. Runyon, superintendent of the Eaton Manufacturing Company, was killed last week, when his car was struck by a southbound Grand Trunk passenger train in Detroit. He was 39 years old. Following his return from the war he became purchasing agent for Peterson Spring Co. and held that position until the company was absorbed by the Eaton Manufacturing Co. He is survived by his mother and wife, a daughter and a son.

Ewald Wins Golf Prize

Henry T. Ewald, president of Campbell-Ewald, won a prize on President's Day at the Bloomfield Hills Country Club. His prize was that offered for the best net score on the second nine in Class B. Mr. Ewald's score was 34. He is president of the club.

NACC Studies RR's Rate Boost Petition

To Reach No Conclusion Of Effect on Transport Charges Prior to Review

A thorough study of the railroads' petition for increased freight rates presented to the Interstate Commerce Commission at Washington this week will be made by traffic directors of N.A.C.C. member companies before any conclusion is reached as to the possible effect of the petition upon transportation charges on the extensive shipping of the automobile industry. As a result of this plan, which was decided upon at a meeting in Detroit, representatives were present at the hearing and kept a close check upon the testimony and factual exhibits presented by the various carriers represented.

Opposition was voted to any additional federal regulation at this time of trucking rates. Although one of the very largest users of rail transportation, trucks are utilized for various services by the industry, and the traffic managers can see only added confusion in the proposed regulatory laws, considering that the Trucking Code, which requires filing of rates by licensed operators, is going to provide at least a laboratory test of what practical steps might be taken in this matter which presents a very complicated problem as compared with the tariffs and classifications used by railroad systems.

Companies represented at the meeting included Auburn, Cadillac, Chevrolet, Chrysler, Dodge, Federal, General Motors, Graham-Paige, Hudson, Hupp, Packard, Pontiac, Studebaker and White, also K. A. Moore, N.A.C.C., and J. S. Marvin, chairman of the conference.

CALENDAR OF COMING EVENTS

SHOWS

Cleveland (Automotive Service Industries) .....Nov. 19-23
New York Automobile Show ....Jan. 5-12
Chicago Automobile Show...Jan. 26-Feb. 2
Automobile Merchants Assoc. of N. Y., Automobile Show .....Jan. 5-12, 1935
Washington Automotive Assoc., Automobile Show .....Jan. 12-19, 1935
Automobile Trade Assoc. of Maryland—Baltimore—Automobile Show.Jan. 19-26
Philadelphia Automobile Trade Assoc.—Automobile Show .....Jan. 14-19
Boston Automobile Dealers Assoc.—Automobile Show .....Jan. 19-26

MEETINGS

Natl. Aeronautic Association Meeting, Washington, D. C. .....Oct. 11-13
American Trucking Association, Chicago .....Oct. 22-24

ANNUAL MEETINGS

S.A.E. Annual Production Meeting Detroit .....Oct. 10-11
American Power Boat Association—Hotel Lexington—Annual.....Oct. 25
Society of Automotive Engineers—Annual Meeting—Detroit .....Jan. 14-18
Society of Automotive Engineers—Annual Banquet—New York.....Jan. 7
Automotive Parts & Equipment Mfgrs., Inc.—Annual Meeting—Chicago..Jan. 29

CONVENTIONS

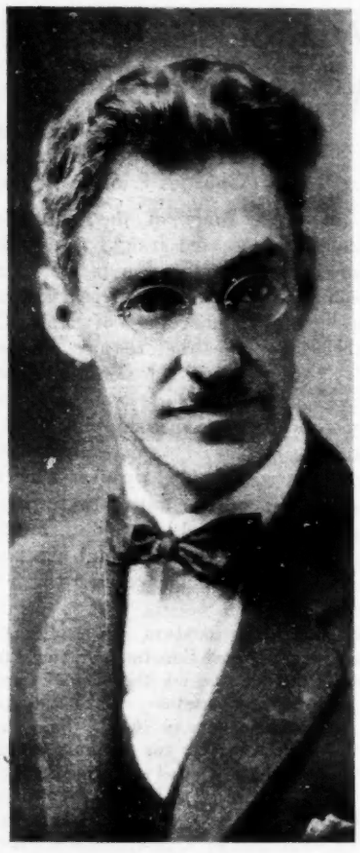
American Transit Assoc., Cleveland Sept. 24-27
Natl. Wholesale Hardware Assoc. Annual Convention—Atlantic City.Oct. 22-25
International Foundry Congress, Philadelphia .....Oct. 22-26
American Foundrymen's Assoc., Philadelphia .....Oct. 22-26
Motor & Equip. Wholesalers Assoc. Annual Convention — Cleveland, O. Nov. 16-17
National Foreign Trade Council, New York .....Oct. 31-Nov. 2

EXPOSITION

Natl. Exposition of Power & Mechanical Engineering (Biennial) New York, N. Y. .....Dec. 3-8

FOREIGN SHOWS

Paris Automobile Salon .....Oct. 4-14
London International Automobile Show Oct. 11-20
International Aeronautic Exposition, Paris, France .....Nov. 16-Dec. 2



William B. Stout, who has been nominated for the presidency of the S.A.E.

We Can't Keep Cars to Buyers

by William B. Stout

AUTOMOTIVE engineering which during the past few years has been gravitating more and more toward concentration on minor details of vehicle design with less and less attention to fundamentals, today stands the finest chance it has had in more than a decade to come into its own once more.

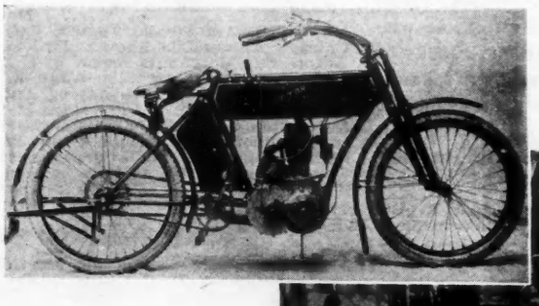
Economic considerations are opening the way to really creative engineering. Our average present day automobile appears to have run its engineering development course. A point has been reached where, except for minor improvements, little can be done to it. It is almost a completely evolved entity. Changes are being made in the greater number more for the sake of change than for fundamental improvement. Evidence of this is the greater attention given by designers to bodies than to chassis, and to exterior body appearance rather than comfort and safety.

It seems to be high time that the industry should take stock of itself. Hasn't the time come when it must once more abandon the objective of selling the public on what it has, by merely making older cars LOOK obsolete, and instead work out vehicles which more aptly suit the public's needs of today and tomorrow?

From a design standpoint the automobile, as a matter of fact, has gotten away from us. Mechanically, the best that we have been able to do, recently, is to try to keep design trends in check. Irrespective of whether or not the public wants new performance levels, we ourselves have certainly gone performance crazy, for one thing. For performance we have sacrificed head room and leg room in our cars, lowering the center of gravity to keep the safety factor within reason, and shortening our bodies with longer and longer hoods to house ever bigger engines. More horsepower with our basic design has pushed weights up higher and higher, with costs of production increasing in almost direct proportion. Economy has been virtually forgotten in the competitive shuffle.

Today already there are signs that the industry is becoming conscious of the fact that the road is not clear ahead. The same psychology that aroused sufficient question in the minds of management to institute "consumer research" as a guide to automobile design undoubtedly will also lead car manufacturers eventually to new lines of endeavor to bring the automobile in line with modern economic conditions.

Finance companies may have been quite successful in the past year or so in selling $1,000 automobiles to people with $800 incomes, and $1,500 cars to families earning $1,000 a year, but they certainly can't keep it up indefinitely. The engineer will have to help out once more with car designs that can justify themselves profitably to both the public and the stockholders of car manufacturing



Mr. Stout on a motorcycle that he built in 1910. Note the belt drive

In 1911 the Victor was offered equipped with a two-speed semi-automatic (preselective) planetary transmission designed by him

on Selling $1000 with $800 Incomes

Economic conditions doom "standpatism" and open way for creative engineering to give public the economical car it needs

organizations. Our low-priced cars today are the medium priced cars of yesterday. Middle price range vehicles are the high-priced cars of but a few years ago, and manufacturers of automobiles selling for only $2,000 and up have suddenly found themselves in a market which quantitatively has no more potentialities today then that for the Rolls Royces and similar custom cars of the '20's.

Of all the factors which have contributed toward this end, the outstanding one within the industry itself is WEIGHT. Competitively, it may be useful to be able to tell a non-engineering minded public that your car weighs more than other cars in its price class, when as a matter of fact if the car didn't weigh so much it could be sold profitably for less money to a greater market.

Weight reduction must come within the next few years, and not by the elimination of a pound or two here and there, but by fundamental engineering changes. Our engines today weigh roughly 10 lb. per horsepower. Ridiculous! There is no fundamental engineering reason why an automobile engine should weigh more than 3 lb. per horsepower—240 lb. for an average 80-hp. engine, as against our present 800-lb. standard.

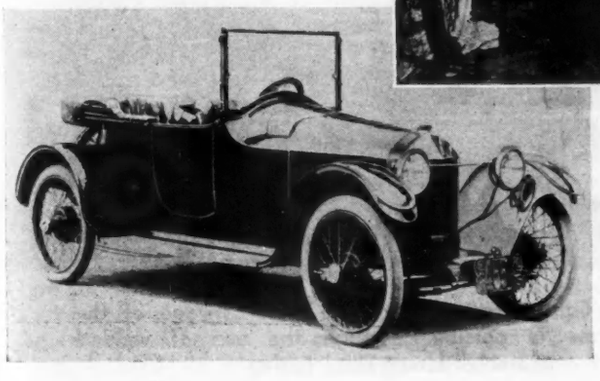
Obviously, mere chiseling on engine weights isn't going to give us that reduction. Fudamental design is the only answer. Piston speeds will have to go up to give us higher outputs per cubic inch of piston displacement. Sooner or later probably we will have to unsell the public on the advertising psychology that has taught it that more cylinders are desirable and necessary for more horsepower. More cylinders mean more internal friction and lower basic economy potentialities, a higher weight factor, and certainly increased manufacturing costs.

For instance, a four, to all intents and purposes, if such an engine is desired, can be made just as smooth as an engine of greater number of cylinders. It can be made to give just as much horsepower—a four-cylinder engine powered the winning car at Indianapolis this year. And what possible loss might be occasioned in the way of low-speed torque can be more than made up by the better accelerating abilities of a really lighter weight vehicle. Furthermore, any appreciable resulting reduction in engine weight, of course, will automatically be reflected in lower weights throughout the car.

Superchargers have already appeared in modified form on stock cars. Their development makes possible the use in future of even such

As early as 1913 Mr. Stout incorporated independent springing in his designing the Imp cycle car. The driver is Stanley Knauss who is still associated with him

Chief Engineer Stout of the Scripps Booth offered this model during 1914, 1915 and 1916



The author is recognized as the father of all metal planes and is seen here in the first of this type. It is the Navy TS and was built in the Stout shop in 1922 and equipped with two 300 hp. Packard engines. The upper view shows the plane in flight with full load of two tons including the torpedo

a seemingly radical type of engine as a supercharged two cycle. Certainly such an engine offers enough possibilities in the way of specific output and low weight to make its dismissal without investigation inadvisable.

Economy is becoming a more and more important factor in automobile purchases to the public. Some of the suggested changes would contribute toward that end. Perhaps we should go even further. The use of liquefied "aromatics," such as butane and propane, offers highly interesting possibilities for passenger cars, not only for economy but also for the tremendous increases in *specific* engine outputs their use makes possible. Standard compression ratios of eight and ten to one would be quite reasonable if such fuels were used. To say the least, these fuels seem to offer greater possibilities for engineering advancement in fundamental design than, for instance, the sometimes discussed possibility of adapting the Diesel to passenger cars.

Perhaps some day we will no longer use transmissions as we know them today in passenger cars. In the next year or two, however, we should at least get rid of the gear shift lever. We may not be ready for an automatic transmission or no transmission at all—but at least we can make these units semi-automatic.

When we come to the question of bodies, there are too many possibilities apparent to the imaginative engineering mind to be even enumerated here. There are, nevertheless, some rather definite things we do need. One of them is a real increase in luxury and comfort from the lowest priced car on up.

Why should we model our body interiors on boudoirs, as we have been doing? Functionally the automobile comes closer to the yacht, and there seems to be no reason again why our interiors should not be patterned after that decidedly more comfortable vehicle of transportation.

There is more than just room and interior arrangement to the question of comfort. Noise is an obvious factor. Its elimination requires the complete insulation of the body from the road, and complete insulation of engine and running gears from the body.

Further, we still need what the engineering fraternity has promised but not given us: a ventilation system that is complete and free from drafts—that will function in any weather and without wind noise.

In another year, judging from present indications, we will have to have at least the fundamentals of complete air conditioning worked out for both hot and cold weather—and with no smells.

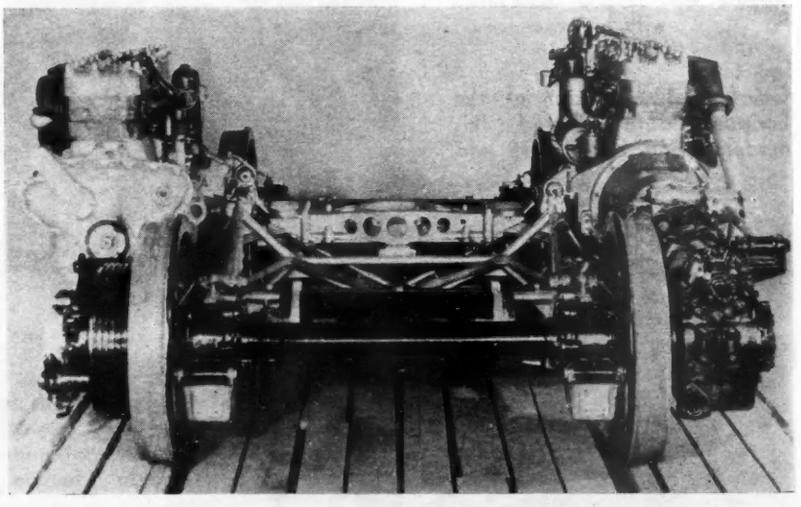
Safety factors for bodies must be increased. The adoption of safety glass throughout is only a minor first step in that direction. Bodies must be designed to be able to withstand a crash with the minimum of body damage and certainly with the minimum chance of injury to the occupants.

Better vision is another thing needed for increased safety—particularly better rear visibility and the ability to see things beyond the rear corners of the car.

From riding qualities considerations, weight distribution studies have only recently begun to form a part of regular engineering work. More data are needed along this line. Rear-engined cars offer some rather obvious advantages in this respect. For good riding qualities what is needed is more weight at the rear—not less. It doesn't require an engineering analysis either to tell you this—the sandbag in the rear of the old car is an apt indicator.

Concentration of weight at the rear rather than at the front furthermore produces the reversal of present conditions. Moving the weight away from the front leads to easier steering, one of our major present-day problems.

(*Turn to page 412, please*)



The unusual light construction of the undercarriage of the Stout railplane is possible through the use of welded chromolybdenum steel tubing

Can We Have Economic Traffic Control Without a Dictator-Policeman?

By Julian Chase

"WITH the situation that exists today and is likely to exist in the United States for the next 10 years, the true objective of our democracy should be so to manage the tariff, the money system, control of railroad and interest rates and to encourage such price and production policies that there will be a continually balanced relationship between the income of agriculture, labor and industry."

Yes, Mr. Secretary of Agriculture Wallace, author of "Our New Frontiers," that might well be one of the laudable objectives of our democracy. But how is it to be attained? What, specifically, can we agree upon generally as price and production policies that will positively and constantly contribute to a "balanced relationship between the income of agriculture, labor and industry"? In a democratic state where sectional interests are still capitalized by politicians, how can we adjust our tariffs so that they will further this idealistic end? Shall we turn our money system over to lone-wolf economists for experiments in gold buying or shall we have it regulated by Senators from silver-states?

"It is necessary," you say, "in modern democracy to furnish the red and green lights to guide the traffic but not to supply drivers for every car on the road. Reactionaries [There's that epithet again!] who hark back to the lush days of freebooter capitalism [See Life and Times of Theodore Roosevelt] are really anarchists who think traffic lights should be removed so motorists and pedestrians might illustrate the doctrine of the survival of the fittest."

A nice idea, Mr. Secretary, but who's to operate the lights? Who's to say when it's time to stop and when it's time to go? Is it to be a congress of professional politicians or the executive branch of the government, which is made up of men primarily selected by professional politicians? Is it to be bureaucrats endowed with the wisdom and foresight of those who curtailed agricultural production and killed hogs before the drought and later built up a surplus of inferior hides from starved and massacred cattle? Is it to be a group of "young intellectuals" who are long on theory but woefully short on experience and to whom age-old basic problems seem like new problems calling for new and radical solutions?

How, Mr. Secretary, are we going to control those industrial and agricultural motorists who, willfully or otherwise, do not stop when the signals are red or who fail to step on the gas when the lights turn green? How are we going to divert that primitive instinct which prompts us all, including big business men, little business men, farmers, labor leaders, freebooter capitalists and even professional politicians, to consider their own selfish ends and special interests before they take into account what is for the common good?

There is one way, quite certainly, in which we cannot do it. Experience of the past 18 months has shown us clearly that social conscience cannot be effectively nourished and developed on a diet of alphabet soup. Neither NRA nor AAA can be credited with outstanding accomplishment along that line.

When we begin to experiment with economic traffic control we soon find that it is easier to make 'em stop than it is to make 'em go. It takes confidence first and then something more than an executive order or an A. F. of L. resolution to start things moving on the highways of business. Washington has been trying to polish up the green light for more than a year and a half but its rays have not yet penetrated through the azure haze which is as thick as it ever was in many quarters. There are some to whom it appears that the amateur polishers have been using a rag that is moistened with a red paint which didn't get on it in wiping the dust off the Democratic platform.

"The psychology of the American people," you tell us, Mr. Secretary, "is not greatly different from what it was in 1914." That is true. It is also true that it isn't perceptibly different from what it was in 1893, 1778 or 1620. We can go back farther, to the days before there were any Americans, yes back to pre-tribal days, without finding any marked change in innate human characteristics and without discovering any fundamental modification of man's individualistic outlook. Men were selfish then. They are selfish now.

Today we could not find a better laboratory for the study of human nature than our national capital, not excluding that part of it which has to do with NRA. The new arrangement at the top of the Recovery Administration is largely the outcome of conflicts between pet ideas, cherished theories and special interests. Personal ambition, jealousy and greed for power or fame or position, to some extent at least, have lent motivating influence. There has been abundant evidence of "rugged individualism" among our administrators. They have used the same methods as business men (inhibited or not) employ in their contention against competition. Some of them, quite possibly, have also drawn on the stock of ways and wiles of the politicians. Almost no one of voting age would expect anything different. That's the way we are—administrators and administered. The upshot of it all is that, among other things, we now have more new boards. They may merely increase the height of the Administration's neatly lettered lumber pile. They may form the long-sought bridge across the New Deal's industrial quagmire.

(Turn to next page, please)

Obviously some of our lesser pinks consider it possible that a planned economy can today be managed by a democratic government. On the other hand, many experienced economists and social scientists seem to be certain that, with human instincts what they are and human virtues what they aren't in this year 1934, no truly effective planned economy can be managed or even planned without the power and potential tyranny of dictatorship back of it. In the millennium, when selfishness is bound and altruism reigns, when omniscience is at least approximately attained, we may have a democratic state in which a managed or automatically balanced economy is spontaneously developed. But we did not enter the millennium on March 4, 1933.

In the long run it may prove to have been safer for democracy to rely on the tortoise-like, slow but sure progress which inherently charterizes the evolutionary development of basic social-economic trends than on the hare-like hopping of New Deal impetuosity.

We Can't Keep on Selling $1,000 Cars to Buyers with $800 Incomes

(*Continued from page 410*)

Along with lower car weight and better distribution should come bigger and softer tires. They in turn require more jounce space with the softer springs needed. Cars should be designed to have good riding qualities without shock absorbers. These latter units should function mainly on a "control" basis, supplementary to inherently good riding qualities.

Next to weight in production cost importance is the question of die-cost. Our present trends are leading us to ever higher annual capital investments in dies. We have had to make our cars look different in an effort to obsolete previous designs. Where has this money gone? Much of it has been spent on fenders, runningboards, hoods and radiator shells and grilles. Changes often for the sake of change and contributing little if anything to fundamental and justifiable improvement.

The elimination of any or all of these units shouldn't make our cars less distinctive, but would result in tremendous savings in annual die costs. Runningboards at least are no longer necessary. On many cars they are actually already a decided inconvenience.

All of these suggestions point to just one thing: designing automobiles from the ground up to meet modern requirements. When engineering and management recognize this need, the road will be opened for creative design to rebuild the industry to higher levels of profitable production.

One more thing. It is true that the public does not know in detail just what it wants in the way of an automobile. It does know that it wants more automobile for the money. The demand for automobiles today is greater than ever, but the per capita wealth does not justify buying 1932 cars at 1929 prices on 1934 incomes.

Mr. Stout is shown here beside the first all metal commercial plane built in this country

In its effort to keep the public buying, the industry has run up a tremendous unit distribution cost. That was and is inevitable as long as the industry is trying to sell the public what it has rather than what is best suited to its needs. Sound creative engineering, based on modern fundamentals, discarding outworn traditions and retaining only those things which fit into the new picture is the only basis on which we can go ahead today. I, for one, believe that the industry will not neglect its opportunity.

Packard Production in Switzerland

REFERRING to a recent note in these columns to the effect that the Packard car is now being assembled in Switzerland, we learn that this work is in charge of Werner Risch, 30-34 Neumuhlequai, Zurich. The Swiss Packard is produced by an organization of several Swiss plants and the sales are in the hands of Mr. Risch. It appears that the Saurer firm of Arbon, which assembles Plymouth cars in Switzerland, has nothing to do with the production of Packards.

S. A. E. Nominees for 1935

D. P. Barnard, vice-president, Fuels and Lubricants of the Standard Oil Co. (Ind.)

President, William B. Stout of the Stout Engineering Laboratories, Inc.

Vice-President, Diesel Engines, C. L. Cummins of the Cummins Engine Co.

Vice-President, Passenger Car Body, C. O. Richards, Cadillac Motor Car Corp.

Treasurer, David Beecroft, Bendix Aviation Corp.

Vice-President, Truck, Bus and Railcar, C. O. Guernsey, J. G. Brill Co.

Vice-Pres., Transportation & Maintenance, T. C. Smith, American Tel. & Tel. Co.

Vice-President, Aircraft, C. H. Chatfield, United Aircraft and Transport Corp. of Conn.

Councilors for 1935-1936, left to right: Austin M. Wolf, Consulting Engineer; F. C. Horner, General Motors Corp.; H. T. Woolson, Chrysler Corp.

Vice-President, Passenger Car, L. P. Kalb, Continental Motors Corp.

Vice-President, Aircraft Engines, Philip B. Taylor, Wright Aeronautical Corp., and Vice-President, Production, V. P. Rumely, Hudson Motor Car Co., also appear on the list of nominees.

Dodge Investigations of Riding F for Quantitative Measurement o

FOR the past six months Dodge Brothers Corp. has been quietly financing research on the fatigue-producing elements in motor car operation, under the supervision of Andrew H. Ryan, M.D. While no definite quantitative results are available as yet on the influence of individual factors, such as riding qualities, steering, vibrations, noise, etc., Doctor Ryan does feel that as a result of the work done so far instrumentation and test methods have been developed to a point where actual quantitative investigations are possible with reasonable accuracy.

Doctor Ryan has been a specialist in the field of fatigue study for many years, having for one thing been director of fatigue research among munitions workers during the War under the U. S. Public Health Service. He has held professorships of physiology at several universities and has been a prominent lecturer on problems of industrial hygiene, including fatigue.

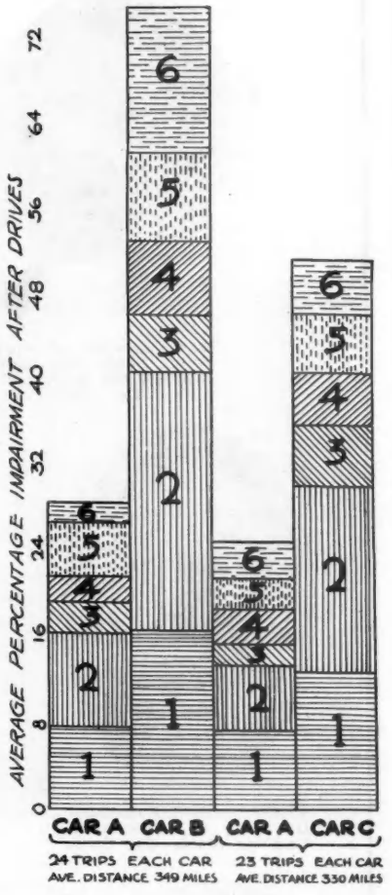
While some investigations on fatigue incident to driving a car have been carried on, Doctor Ryan believed that the instrumentation used did not offer conclusive proofs without a more definite check of the value of the tests themselves. His procedure therefor has been to develop and adapt a wide variety of fatigue tests, for the purpose of coincidental checking of such test methods in effort to correlate the findings.

Among the tests used were:

Hand-eye coordination test
Postural steadiness test
Vascular skin reaction test
Visual fatigue test
Complex reaction time test
Mental addition test

These tests were given the drivers (six young men recently graduated from college and with no knowledge as to purpose of tests) before and after a day's run in Dodge and other cars in the same price class, all 1934 models, and all operated over the same routes under similar conditions the same day.

As Doctor Ryan apparently anticipated, the various tests gave different results with different individuals. Driver A at the end of the run might show fairly high fatigue according to one test, and fairly low according to another. Driver B would show just the reverse, etc.



Comparative Impairment of Human Functions Resulting From Driving 3 Different 1934 Sedans

1. Vascular Skin Reaction.
2. Postural Steadiness.
3. Hand-Eye Coordination.
4. Visual Acuity.
5. Complex Reaction Time.
6. Mental Addition.

This alone showed that reliance on a single test for fatigue study was practically worthless from a quantitative point of view.

A further factor affecting test readings which Doctor Ryan anticipated and found was the influence of "spurt" in the individual on test results. This is a physiological reaction in the individual which permits him for brief periods to "perform" on a test much better than his relatively fatigued condition warrants. To eliminate this "spurt" factor therefore was also necessary in the developing of test methods.

Furthermore, some individuals tire quicker in some directions and others in other directions, so that checks should take into account the effect of fatiguing influences on the various senses of importance.

The result has been the development of the above mentioned tests. The first of these, hand-eye coordination, is a check on the effect of fatigue on the coordination of perception and muscular reaction—important in safety considerations of drivers.

In this test the driver sits facing a brass plate having rows of holes beginning with ¾ in. diameter, and decreasing in steps of 1/32 in. to ⅛ in. diameter. The driver is required to insert a brass stylus into each hole, beginning with the largest and moving toward the smallest without touching the edge of a hole. If he does touch the edge an electrical contact is closed, sounding a buzzer. The speed at which the stylus is inserted is controlled by a metronome alongside the instrument. This device, long used in fatigue tests, was originally developed by Professor Jacklin of Purdue.

In the postural steadiness test the meter measures the total amount of sway over a period of time, with the individual being tested having his

Fatigue Provide Basis of Individual Causes

eyes either open or closed. The pulleys are constructed with pawls so that each pulley can move only in one direction—toward the driver, thereby giving a true cumulative total. This device, developed by Professor Miles, is believed by Doctor Ryan to be the most sensitive instrument available for measurement of postural steadiness. The instrument obviously measures the effect of fatigue on those senses contributing toward postural steadiness.

The vascular skin reaction test is one in which there is no conscious activity on the part of the person being tested. In this test the investigator makes two strokes on the forearm with a special instrument insuring constant pressure over the curved surface of the arm, so that the stroke is the same in all tests. After the stroke is made a white streak appears on the surface due to a reflex contraction of the blood vessels of the skin. Time is measured from the time the strokes are made until the white streak begins to fade. The duration is a measure of the fatigued condition of the nervous system. When not fatigued, the white streak remains for a much longer time.

The apparatus for measuring visual fatigue consists of a graduated scale mounted on a long frame carrying a smaller rider with a card on which are drawn in black ink the letters "l" and "i," separated by a distance of 1 millimeter. Definite head location is obtained by the driver biting into a wax impression of his own teeth, fixed at the end of the carrier.

In this test the effect of spurt was found to be quite pronounced, and as a result the method used was for the driver to look for 3 minutes at the card, which is placed at such a distance from the eyes that he can just see it distinctly when unfatigued. When fatigued the letters will appear alternately clear and blurred in that position. During the interval when the letters are blurred the driver depresses a key which operates an electric counter, recording the time intervals. The total time of blurred vision is a measurement of the fatigue on the optical system. This test is credited to Messrs. Ferre and Rand. Doctor Ryan found it to be a good measurement of general fatigue in addition to a check on eyestrain.

In the complex reaction time test the subject is required to call off the names of colors of 1200 squares as rapidly as possible. These colors (of which there are 10) are arranged in sets of 100 on large white cards, with the squares in no particular order. The investigator has duplicate cards and a stop watch, recording the time required to name the colors and the number of errors made.

Fatigue causes an increase in the time required and an increase in errors also.

Mental addition of 21 columns of 15 numbers each is also used as a check on fatigue, with a measurement of total time required to obtain correct answers. It was found applicable to checks on fatigue caused by automobile riding and driving.

by Athel F. Denham
Detroit Editor, Automotive Industries

Two other tests were also used by Doctor Ryan in the cars themselves. One of these was a check on total steering wheel movements and was intended largely as a check of different cars against each other, driven one behind the other over the same roads. The test showed for one thing that movements were more frequent and larger on gravel than on hard-surfaced roads, but due to variations in other conditions between the cars in question was not included by Doctor Ryan in his comparison between individuals, etc.

The test did seem to show to the writer, however, that fatigue causes inefficiencies in steering, and, moreover, that the larger the steering ratio the more rapid the increase in steering wheel movement with fatigue—with a tendency, quite pronounced, to over-steering.

Another test used by Doctor Ryan was a measurement of restlessness of the driver. A counter was attached to the back of the front seat which registered the number of movements of the driver against the back of the front seat. There were no clear indications as to whether or not the number of restless movements increase with fatigue. It did, however, seem to show that there were wide divergencies in number of restless movements in different cars.

A chart, reproduced herewith, shows a comparative impairment of human functions as the result of fatigue, resulting from driving three different sedans, the figures being averages for the various drivers used in the test. The differences in effect on differing human functions might well be noted here. Checks on individual drivers show even greater divergencies. The average for all drivers, however, showed that impairment in one function was accompanied by impairment in other functions, to a lesser or greater degree, but nevertheless an impairment.

Several interesting conclusions might be drawn from this work of Doctor Ryan's, which, it is to be hoped, will be continued by Dodge Brothers Corp.

1. Single tests are not reliable quantitative guides. Checks must be made on different human functions to obtain a true picture.

2. The individual's own conception of fatigue is entirely unreliable. Some drivers showed high fatigue on tests when they said they felt "fine," and less fatigue when they claimed to be "pretty tired."

3. There should probably be some dissociation of tests of fatigue if the studies are to show the effects of driving on safety.

4. Test methods have advanced sufficiently far so that individual contributing factors can now be investigated.

Good Manifold Design Based o

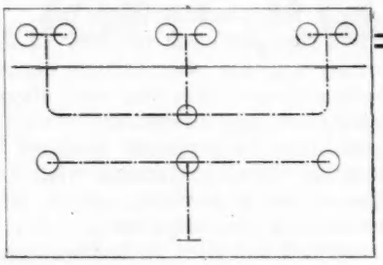


Fig. 1 — Center-line diagram of the intake manifolds studied, with riser and cylinder head passages also indicated

Part One

Part two will appear in an early issue

ENGINE performance depends upon two general considerations—the mechanical structure of the engine and the charging of that structure with working fluid. An important aspect of the latter is the degree of uniformity with which cylinder charging is accomplished, since both the maximum power obtainable and the fuel economy are dependent upon it to an appreciable degree.

Early in 1931 a charge-distribution investigation was started under the auspices of the National Automobile Chamber of Commerce. The aim was to learn how the fuel behaves in socalled Tee-type manifolds of six-cylinder engines (Fig. 1), to permit of a statement of the relative virtues of various detail variations in manifolds of this general type. A very clear picture of the distribution characteristics of this type of manifold resulted, and this served as a guide in evaluating errors in distribution due to different causes, which is the subject of the present article.

All values of distribution error here presented are averages of results obtained in tests with eight different intake manifolds on the same engine. Corresponding axial lengths were identical in all of the manifolds, but the latter differed with respect to cross-sectional area and cross-sectional form, and they had bends ranging in mean radius from 0.5 d (sharp inside corner) to 1.2 d. The same carburetor and riser were used throughout.

The results were dominated by characteristic behaviors attributable to what may be called the axial form —that is, the form represented by the center lines of the various elements of the manifold. So important was this factor that the effects of the several variations of detail are secondary. Thus the method of averages here employed gives a better exposition of the typical distribution than would a separate consideration of any one or all of the different designs.

The engine was operated on an electric dynamometer under full-load and under "rated-load" conditions, at from 400 to 2,000 r.p.m. inclusive. In addition to making observations of speed, load, rate of fuel consumption, barometric and mean intake pressures, and room and intake temperatures, a multiple indicator* employing electro-magnetically actuated sampling valves was used continuously to record cylinder pressures. This indicator draws pressure-time diagrams of all cylinders of the engine simultaneously, each diagram being a composite of a great number of cycles. The resulting diagrams represent mean cycles—a point of much value in this kind of work. Where successive cycles in a cylinder produce somewhat different pressures at a given point in the cycle (as always happens during combustion if the fuel supply to a cylinder differs appreciably from that resulting in maximum power) the line drawn by the indicator becomes broad or ragged at this point, which assists materially in classifying the momentary performance.

In the study of intake pressures for the determination of pressure differences between the riser and the several manifold outlets, and be-

*Product of Commercial Engineering Laboratories, Detroit, Mich., having 12 sampling valve controls in the synchronizer unit.

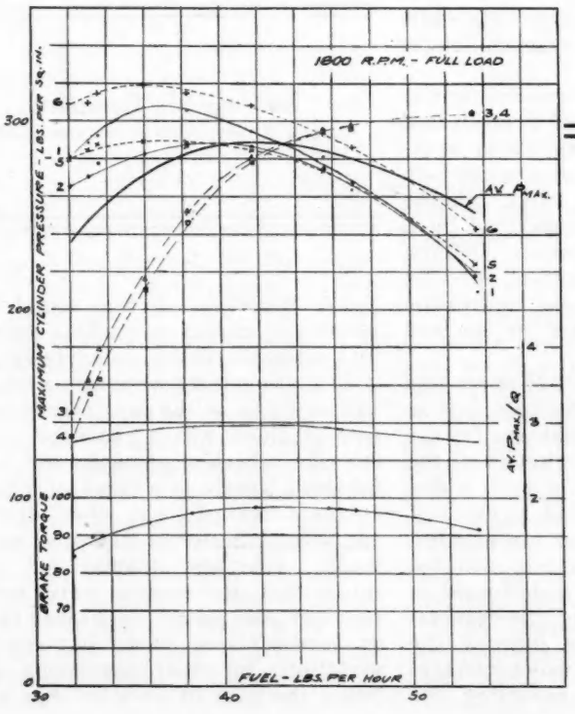


Fig. 2—Typical relationship between engine net performance and maximum combustion pressures of individual cylinders

on Specific Natures of Flows

Errors in mixture distribution due to different causes are evaluated from research results

By P. S. TICE

tween the manifold outlets and the cylinders served by each of them, the drawing mechanism of the indicator was replaced by a group of mercury-column manometers, each connected to a pressure sampling valve at the point of pressure measurement. So used, the phase gearing of the indicator was advanced by hand in steps of 5 crankshaft degrees (instead of continuously as in drawing cards) and the pressures at all points were read from the manometers. In this way great accuracy of measurement of relatively small pressure changes was assured, with results that could be readily plotted to any desired scale and in the desired combinations.

The float chamber of the carburetor was fitted with a tight cover having a tube leading to a pressure regulator. By adjusting this regulator, any desired pressure, either sub-atmospheric or super-atmospheric, could be maintained in the float chamber. Thus the rate of fuel discharge in the carburetor could be altered either way from that due to normal setting without in any way disturbing that setting.

With the rate of fuel consumption continuously indicated by means of a direct-reading flow-meter, three sets of indicator diagrams were taken at each speed and load setting, with fuel rate as the chief variable, at 0.9 normal, normal, and 1.1 normal, respectively. These groups of diagrams show unmistakably whether the charges to any cylinder at the normal rate of fuel supply are richer or leaner than the maximum-power mixture. If the proportion of the mixture in a cylinder is equal to that corresponding to maximum power, or nearly equal to it, at the normal rate of fuel supply, a 10 per cent change in either direction results in a reduction of the pressure developed in the cylinder. If the mixture in a cylinder is lean at the normal rate of fuel supply, a reduction of the rate of fuel supply strongly reduces the pressure developed, while an increase in the rate of fuel flow gives increased pressure; with an over-rich charge at the normal rate of fuel supply, a reduction in the rate of fuel supply causes an increase in the cylinder pressure, while an increase in the rate of fuel supply reduces the pressure.

The errors here reported were arrived at with the aid of certain simplifications. In the first place, the error is given in terms of the maximum cylinder pressure. Obviously, then, the values given include the combined effects of relative mixture proportion, relative air-charge weight, and relative dilution of the new charge with products of combustion—to name only the most important factors in the probable order of their importance. Furthermore, the peak pressures as shown by the indicator are here used as criteria of the distribution errors by inserting them in the equation.*

$$\text{Error (per cent)} = \frac{\text{Highest peak—other peaks}}{\text{highest peak}}$$

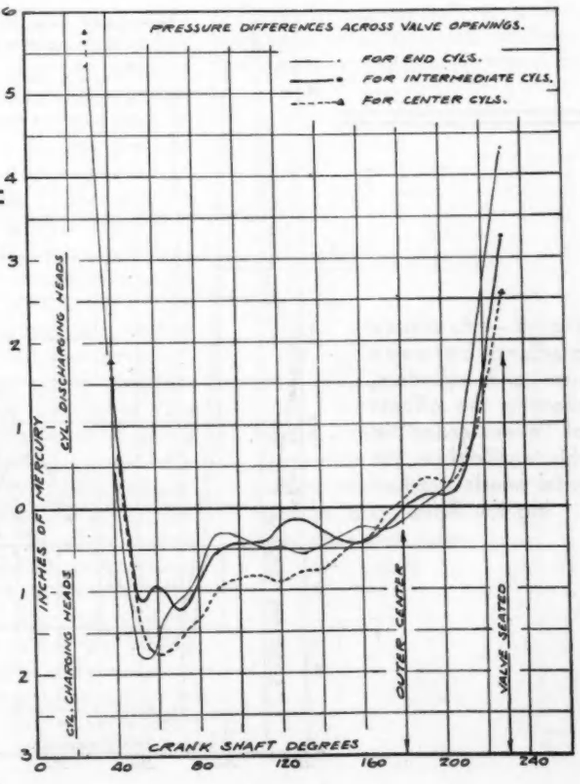


Fig. 3—Through 90 deg. of crank rotation (nearly 40 per cent of the nominal charging time) the "heads" are opposed to cylinder charging

*Use of the peak pressure rather than that of a less easily found value such as the i.m.e.p. is justified by the fact that over a wide range of mixture proportions the average value of the peak pressures of all of the cylinders bears an almost constant relation to the brake torque (Fig. 2). Whatever deviations there may be result in an over-statement (about 10 per cent) when the error approaches the maximum permitting steady firing, i.e., when it is of the order of 50 per cent either way from the optimum.

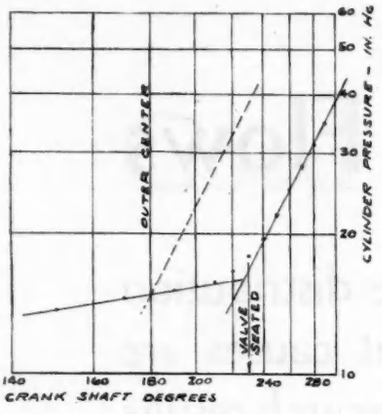


Fig. 4 — Other things being equal, earlier closing of the intake valves could increase effective charge densities about as indicated by the dash line

The pressures are taken from the group of diagrams for the normal rate of fuel supply, and the diagrams for sub-normal and super-normal rate of fuel supply serve merely to show the direction or sign of the error—whether the mixture is over-rich or impoverished.

This method of evaluating the distribution is open to the criticism that in general the errors will be understated, since it is by no means certain—or even likely—that any of the cylinders will be developing the maximum possible pressure at the normal fuel rate, which in all this work represents a very close approximation to maximum power development by the engine as a whole. Thus Fig. 2 shows a maximum-power or normal fuel rate with all true peaks displaced one way or the other, and all cylinders in error.

In view of this, it is quite certain that errors so taken are not overdrawn. At the same time, use of the averages of a number of individual results tends to minimize the "understatements." In any case, for the present purpose it matters little if any error reported as 20 per cent should amount really to 25.

From tabulations of errors thus taken for each cylinder under each condition, one arrives by simple arithmetical processes — taking account of the signs of the errors— at several significant statements of relationship:

(1) Pair error of relationship of
  (a) Cyl. No. 1 to Cly. No. 2
  (b) Cyl. No. 5 to Cyl. No. 6
  (c) Cyl. No. 3 to Cyl. No. 4.
(2) Tee-error relationship of
  (a) Front Pair to Rear Pair.
  (b) Center Pair to End Pairs, and
(3) Over-all error
  (a) Maximum or relation of leanest to richest cylinder
  (b) Mean of all cylinders.

Of the pair errors, that between cylinders 3 and 4 is small and inconsistent, and is apparently accidental; but a very definite and fundamental relationship is shown to exist between cylinders of the end pairs, 2-1 and 5-6.

Distribution between the forward and rearward sections of the Tee, while showing marked and characteristic errors, is not discussed here, because of the fact that it is dependent on the effective fuel flow paths in the riser, as determined by the carburetor structure and the attitude of the throttle valve. In the relationship of the center-outlet pair to the end-outlet pairs there is shown an important and characteristic error inherent in this manifold form.

Of the two over-all figures, the means afford a relative measure of the power loss suffered because of the errors, while the maxima tend to indicate in a general way their relative expensiveness in fuel consumption.

Fig. 2 represents results obtained with one of the eight manifolds at a speed in the optimum part of the speed range (from the distribution standpoint) and under full load with, presumably, minimum effect of throttle attitude. It draws attention to the manner in which cylinders located symmetrically with relation to the center of the engine tend to produce equal pressures and equal orders of pressure variation.

Since much of the distribution error is dependent upon the nature of the flow in the intake passages, and these flows are functions of existing pressure differences, this seems a good place to consider these pressure differences, before going into the detail of the errors. Figs. 3 to 8, inclusive, present the results of observations of intake pressures under the conditions of "road-load" and 1600 r.p.m. which represent the much-employed running condition of light load at an intermediate speed.

Of prime interest are the pressures across the valves. In Fig. 3 these are plotted for the durations of the

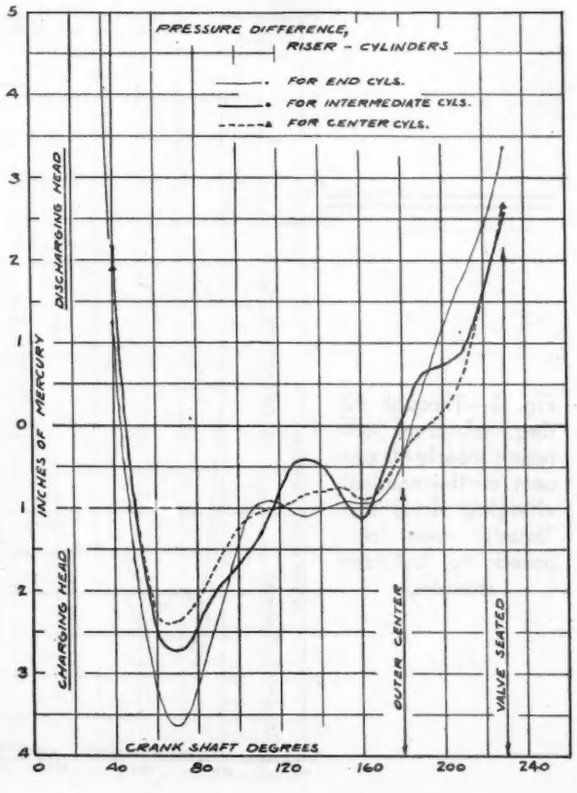


Fig. 5 — Pressure gradients between riser and cylinders, showing the effects of "event order" in this manifold on the total heads producing the flows

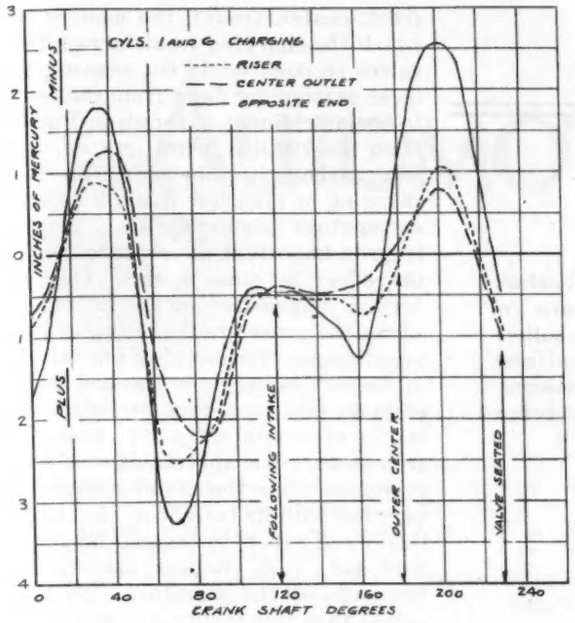


Fig. 6—Relation of pressure in the other outlets of the manifold to that in the one charging cylinder 1 or 6. All parts of the intake contribute something. The end-to-end oscillations superimposed upon the flows to the center cylinders are striking examples

openings. Considering for the moment only the degree of cylinder filling, the location of the cylinder in the engine (chiefly its remoteness from the riser, and hence the length of the intake passage) has some bearing on the effective charging heads, those for the center cylinders being higher, in the main. With respect to cylinder filling, it is also clear that all the cylinders contain more charge at the outer center than at any subsequent time. This is due to marked falling off of the intake-outlet pressures relative to the cylinder pressures, and, as a result, charge is in all cases returned to the intake between outer center and the seating of the valve. The logarithmic graph of cylinder pressures for this portion of the cycle, Fig. 4, depicts the approximate extent of the loss.

When considering the results sought in the determination of a valve timing, and the possibility of some need for compromise, it is quite clear that the time of closure of the intake should be governed almost solely by the sign of the pressure gradient across the valve opening. At given points in the cycle this changes relatively little, in a given engine; but among engines of different numbers of cylinders (charging from a common passage) the shift is important. In other words, optimum intake closure time varies for engines of, say, 1, 4, 6 and 8 cylinders. In a general way, the greater the number of cylinders the earlier should be the intake closure.

At the usual time of opening of the intakes, at or very shortly after inner center, the clearance spaces contain combustion products at super-atmospheric pressures and at high temperatures. The intake spaces on the other sides of the valves contain air, fuel vapor and fuel liquid at comparatively low temperatures and at pressures anywhere from almost atmospheric to one-third atmospheric, depending upon the relative load on the engine. As soon as the valve leaves its seat, these two pressures begin to equalize, and the outflow from cylinder to intake continues until they are equal, the intake pressure rising and the cylinder pressure falling under the combined effects of the outflow and the cylinder volume increase due to piston motion. Without going into an analysis of the time rates of the equalization, it may be pointed out that in a given engine the factors chiefly determining its duration, in terms of cyclic time, are the pressure differences and the speed of the engine.

From the point of view of fuel distribution among cylinders the most important thing in Fig. 3 is the great angular duration of relatively high-pressure outflow immediately following the opening of the valve. This means the ejection into the intake of a relatively large volume (at the intake pressure) of very hot gas. Granting that all the cylinders perform equally on this point, the first effect is to improve the degree of scavenging accomplished during the exhaust stroke. The improvement is only apparent and momentary however, because these combustion products return to the cylinders when the flow reverses and effective aspiration begins. But these partial and like scavengings into the intake can give rise to unlike returns of charge-diluting material to the several cylinders, depending upon the order of events in the intake, and upon its structural form. Further, since these scavenging flows ordinarily represent the highest velocities in the passages in which they occur, and are of high-temperature gases, which within their ranges of influence greatly accelerate evaporation of fuel liquid, it follows that where they go there goes also an increased fuel content in the charge. Thus, scavenging into the intake tends to inequality of fuel distribution and to inequality of

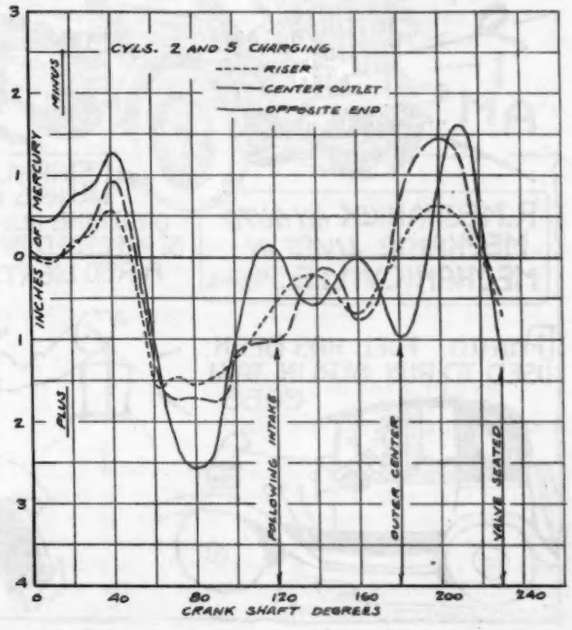


Fig. 7—Relation of pressure in the other outlets of the manifold to that in the one charging cylinder 2 or 5

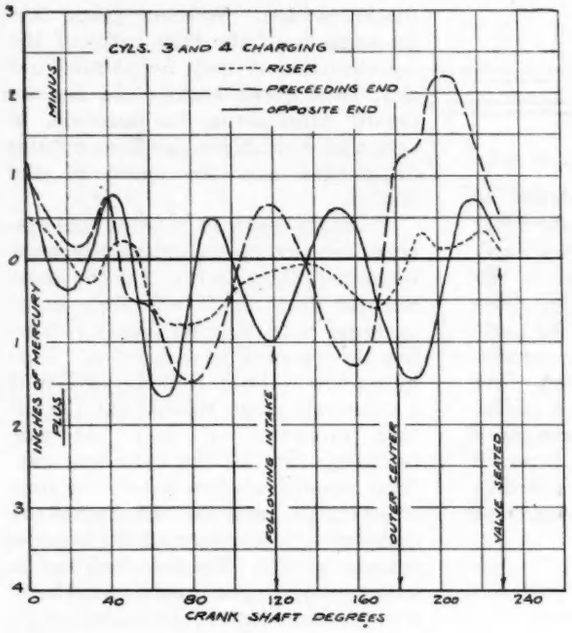


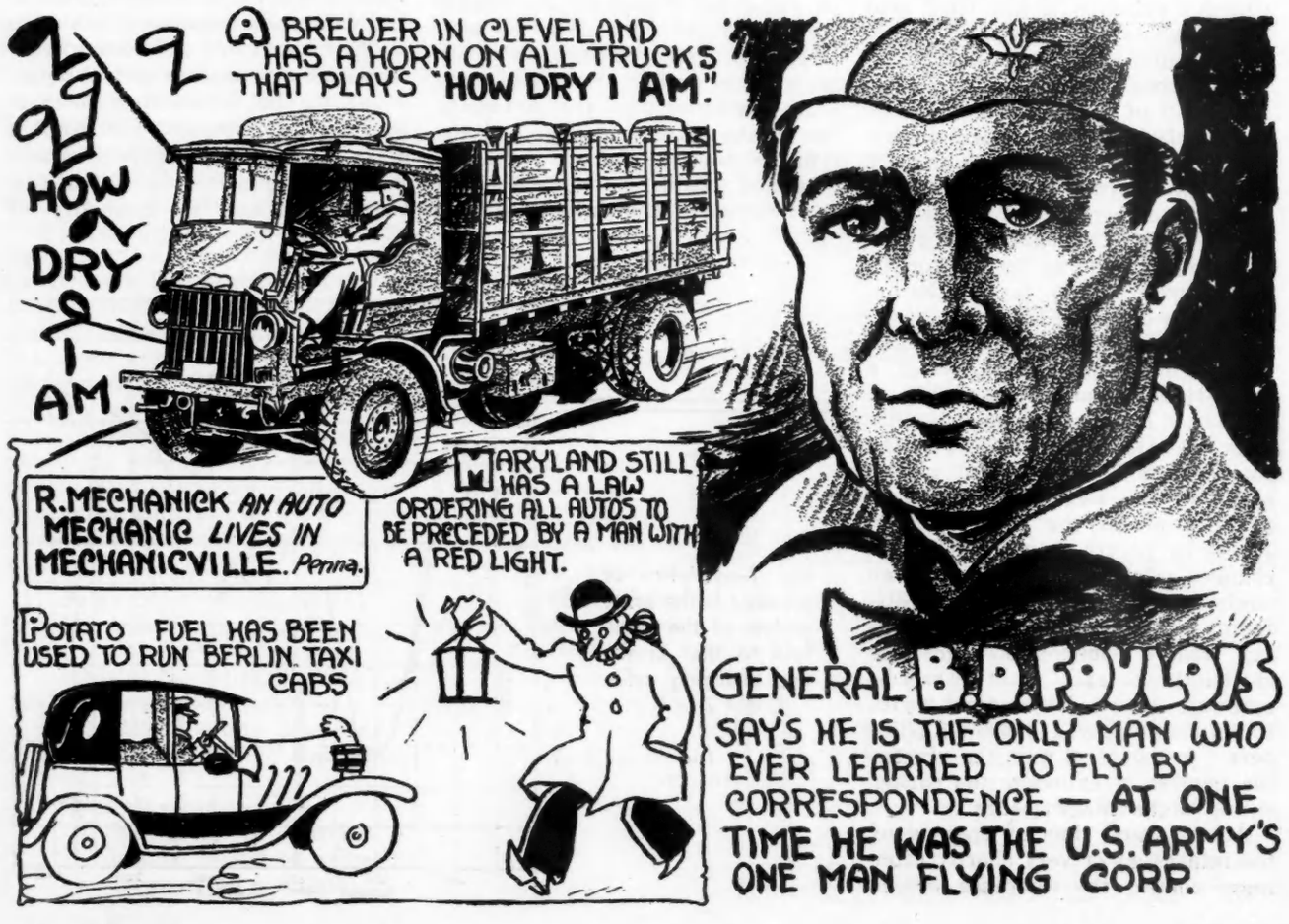
Fig. 8 — Relation of pressure in the other outlets of the manifold to that in the one charging cylinder 3 or 4

charge dilution among cylinders.

In the six-cylinder engine here examined, in which the firing order is 5, 3, 6, 2, 4, 1 (rear, center, rear, front, center, front), the manner in which the charging heads across the valves respond or do not respond to these scavenging flows from the next following cylinder is shown in Fig. 3 from the 120 deg. point onward. It is apparent that the effect on the charging of cylinders 5 and 2 by the scavengings from cylinders 3 and 4 is quite important as compared with the effect in other cases. This is further emphasized in Fig. 5, which shows the gross gradients from riser to cylinders. Considering the values of the scavenging pressures and their angular durations, together with the intake structure (Fig. 1), there is seen to be ample opportunity for gas scavenged from the center cylinders, together with its freight of fuel, both liquid and vapor, to become involved with the fresh charges passing to the ends of the manifold. To the extent that this occurs, the fuel supply of the center cylinders is reduced and that to the end pairs is augmented.

(Part 2 will appear in early issue)

Automotive Oddities—By Pete Keenan


A BREWER IN CLEVELAND HAS A HORN ON ALL TRUCKS THAT PLAYS "HOW DRY I AM."
HOW DRY I AM.
R. MECHANICK AN AUTO MECHANIC LIVES IN MECHANICVILLE. Penna.
MARYLAND STILL HAS A LAW ORDERING ALL AUTOS TO BE PRECEDED BY A MAN WITH A RED LIGHT.
POTATO FUEL HAS BEEN USED TO RUN BERLIN TAXI CABS
GENERAL B.D. FOULOIS SAY'S HE IS THE ONLY MAN WHO EVER LEARNED TO FLY BY CORRESPONDENCE — AT ONE TIME HE WAS THE U.S. ARMY'S ONE MAN FLYING CORP.

AUTOMOTIVE ABSTRACTS

The Physics of Fuel Sprays in Diesel Engines

DEVELOPMENT of the airless injection Diesel engine necessarily raised the question of the physical bases of fluid sprays under high pressure. A knowledge of the factors which influence the fineness of the spray particles seemed particularly desirable.

An article in *ATZ* discusses the influence of the chamber pressure on penetration of the spray, the influence of the orifice diameter and that of the pressure behind the spray. A study of the literature of the subject showed that the influence of the chamber pressure, probably that of the orifice diameter, and to a limited degree that of the injection pressure could be clothed in simple equations by making use of the results of a few fundamental researches. Results of three investigators on the influence of the chamber pressure are in good agreement, the influence of the orifice diameter is considered only in one project quoted, while the injection pressure was varied only between limits of plus and minus 20 per cent in the reports studied. Hence the author considered original work on the effects of these three variables with cylindrical spray orifices as superfluous.

The second part of the paper (which is an abbreviation of a thesis presented for a degree to the Hanover Technical College), the subject of the fineness of spray particles is investigated, on the basis of experimental work done by Dr. Sass of the A. E. G. (German General Electric Co.) and other work done by the author himself. The experimental apparatus used by the author, based on that used by Sauter for the determination of the size of gasoline particles in carburetor sprays, is described and illustrated and charts are given showing the variation of the mean diameter of the spray particles with numerous factors affecting this value.—Hans Mehlig, Automobiltechnische Zeitschrift, Aug. 25.

New Deutz Automotive Diesel Engines

HUMBOLDT-DEUTZ MOTOR COMPANY, the successor of the old Otto Gas Engine Works and also pioneer in Diesel engines, has recently marketed two new lines of automotive Diesel engines. One series is intended for speed trucks and operates at rotative speeds of 2000-2200 r.p.m., while the other is for heavy-duty trucks and operates at 1500-1700 r.p.m. The problems confronting designers of automotive Diesel engines consist in increasing the durability of present-day types, at the same time reducing the weight and the demands on the operating personnel, and in preparing new designs which are less critical with respect to manufacturing practice, fuel types, and supervision in operation.

During the last quarter more than 90 per cent of all trucks of over 2 tons registered in Germany were Diesel trucks, and Deutz alone delivers 10,800 hp. of the new models. A feature of these models is the use of heat-treated Silumin (aluminum alloy) for the block, or of Elektron (magnesium alloy). This permits of achieving low weights without skimping the working parts. These engines, which work on the precombustion-chamber principle, are said to be the lightest high-speed four-cycle water-cooled engines in production. Specific weights vary from 21 lb. per hp. for a four-cylinder 72-hp. engine running at 1500 r.p.m. to 13.6 lb. per hp. for a six-cylinder 95-hp. running at 2000 r.p.m. The camshaft is driven through spur gears at the flywheel end. Crankpins are hardened and connecting rod heads are provided with a lead-bronze lining, while the caps have the usual white-metal lining. Six and eight-cylinder engines are provided with an enclosed vibration damper at the forward end. The automotive line comprises seven different sizes ranging from 50 to 150 hp. in output, but only two different bores and three different strokes are used, which permits of economical production. One, two and three-cylinder industrial engines of the same cylinder dimensions are also built.—*ATZ*, Aug. 25.

Saurer Improves Diesel B.M.E.P.

THE Adolph Saurer Company of Arbon, Switzerland, experimented with high-speed Diesel engines as far back as 1908, but achieved satisfactory results only when it adopted the Acro system in 1928. A few years later 80 per cent of the output of the firm in bus and truck engines consisted of Diesels. Experimentation with a view to improving the combustion were continued, however, chiefly with undivided chambers. It was considered essential to best results that the compression chamber be as compact as possible and of such form that orderly air flow could take place therein. This led to the use of a central cavity in the piston in conjunction with a nozzle mounted in the cylinder axis. There were four valves in the cylinder head, with the nozzle mounted centrally between them. Experiments with a hemispherical chamber in the piston and an air swirl around the cylinder axis, induced by masked inlet valves, led to promising results. The air motion, however, was two-dimensional only and could not well carry fuel particles to all parts of the combustion chamber. Three-dimensional air flow was aimed at and is achieved in the latest design.

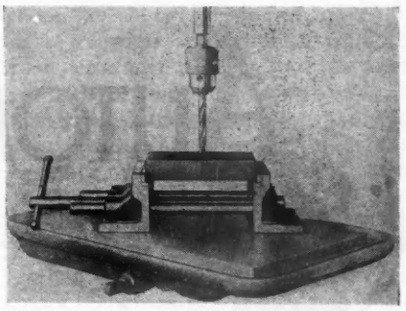
A chart shows B.M.E.P. curves obtained with the four forms of combustion chamber successively used, for a six-cylinder 130 by 180-mm. engine, with smokeless exhaust and at the altitude of Arbon (1300 ft. above sea level). The maximum b.m.e.p.'s, with the different systems, were substantially as follows: Acro system, 82.5 lb. per sq. in.; cross-current system, 97 lb. per sq. in.; fuel sprayed into hemispherical cavity in piston, 105 lb. per sq. in.; spray into piston cavity with three-dimensional air flow, 116 lb. per sq. in. The figures given are absolute maxima and do not correspond to maximum operating speed.—*ATZ*, Aug. 25.

1935 Singers Have Independent Suspension

SEVERAL new models are being introduced by Singer & Co. as part of its 1935 line. One of these is a four-cylinder Nine (9 hp. tax rating) and another a six-cylinder 16. Both of these have independent front springing with floating coiled springs (illustrated in A. I. of May 19 last). Then there is also a new four-cylinder Eleven. This latter and the six-cylinder Sixteen have a fluid clutch between engine and transmission.—The Autocar, August 24.

NEW DEVELOPMENTS

Automotive Parts, Accessories and Production Tools

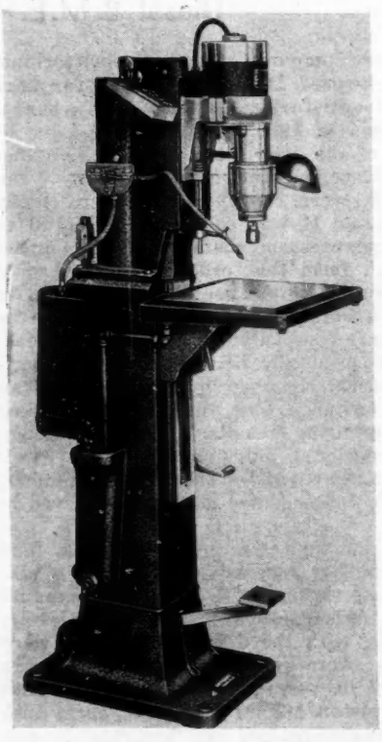


High Speed Tapping Machine

R. G. Haskins Company, Chicago, Ill., has developed a high speed tapping equipment in which a number of improvements are incorporated.

The range of the Haskins No. 2 tapper overlaps that of the No. 1—from No. 10 taps up to and including $\frac{7}{16}$ in. in steel, $\frac{5}{8}$ in. in cast iron, and $\frac{7}{8}$ in. in brass and other non-ferrous metals.

A ½ hp. motor, operating at 3450 r.p.m., supplies power to drive the largest tap within the range of the



machine without overloading. Two change gears are furnished standard with each machine, giving speeds of 1100 and 1750 r.p.m. Reverse speed is double that of the tapping speed. Motors to operate on 50 or 60 cycle, single phase, as well as three phase and direct current, can be supplied.

The accurately ground and balanced tap spindle, complete with the double cone clutch, collet and cap, weighs only eighteen ounces. Blind holes are said to be tapped without fear of breaking taps, even though the tap hits bottom. There is no float in the tap spindle, insuring the most accurately tapped holes. Reverse of the tap is automatic when the pressure on the foot pedal is released.

The tapping unit is readily removed from the machine, and is entirely enclosed in a rigid two piece aluminum housing. Precision ball bearings are used throughout in the construction of this head.

Five accurately ground, light weight collets are furnished standard with each equipment. The collets drive the tap by the square on the shank, and accurately center the tap.

For those shops which have a great variety of tapping, especially in alloy steels, and deep holes, a continuous flow auxiliary motor drive lubricant pump is furnished.

Motor Starter Prevents Accidental Starting

A new line of automatic motor starters, which prevents accidental starting and permits taking full advantage of the motor's capacity without danger of burning it out, is announced by The Lincoln Electric Company, Cleveland, Ohio. This starter is of the across-the-line type and fully meets underwriter's requirements.

It is impossible to close the starting current unintentionally due to the design of the control. The red stop button extends around and beyond the green start button. Consequently, a bump or fall against the control would move only the stop button. Once the motor is stopped, the only way it can be restarted is by pressing the recessed start button with the fingertip.

Full advantage of the motor's capacity is permitted by an inverse time limit protection which allows carrying a small overload a long time or very heavy load a short time. Immediate motor starting upon resumption of current is insured by low voltage release with two wire control.

National Drill Press Vise

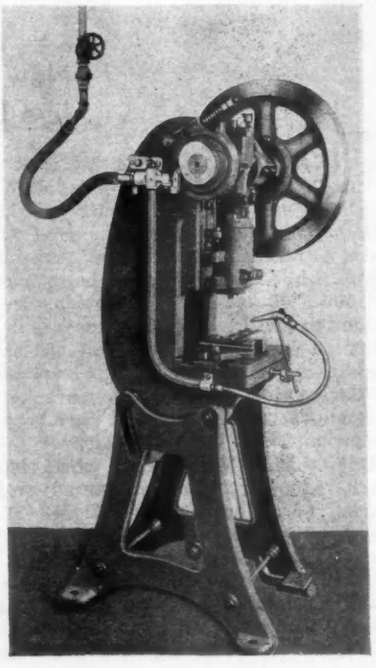
The National Machine Tool Co., Racine, Wis., has brought out a handy drill press vise with a number of interesting features. For one thing it incorporates built in parallels which make it unnecessary to true up the work. There is plenty of clearance between the work and vise thus eliminating interference from chips and burrs.

The vise can be used either horizontally or vertically. Round shafts are firmly and accurately held in place by means of V-grooves. The vise is available in three sizes varying from 3 to 10 in. opening of jaws.

Air Valves for Punch Presses

An interesting air valve attachment for punch presses has been brought out by the F. J. Littell Machine Co., Chicago, Ill. It is said to have an unusually large capacity and blows away comparatively large pieces. It is held in a universal clamp, enabling the operator to adjust the nozzle in any direction merely by loosening and tightening a thumb nut.

The blast is released by means of a roller running against a cam located on the crankshaft of the press. This cam is set so that the air shuts off when the press stops at the top of the stroke. This arrangement makes it unnecessary to change the location of the valve trip each time that an adjustment of the press slide is made.



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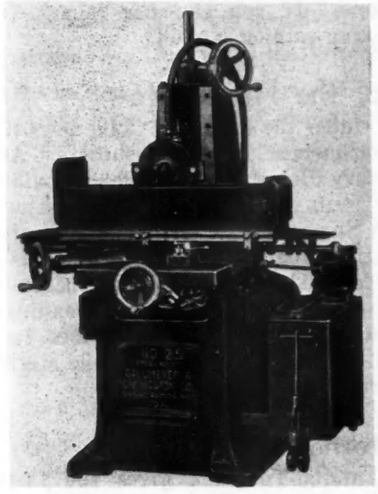
Hydraulic Feed Surface Grinder

Gallmeyer & Livingston Co., Grand Rapids, Mich., offers its No. 25 hydraulic feed surface grinder featuring a number of advantages including a wide range of table speeds up to 50 f.p.m. The working surface of table is 6 x 18 in. and the automatic longitudinal and transverse movements are sufficient to enable the operator to cover the entire working surface of table with ½ in. wide wheel which is standard equipment. The hydraulic mechanism is mounted inside of the base of the machine and driven by a 1 hp., 1200 speed motor. Mechanism is conveniently accessible from either the front or the rear.

There is a choice of two types of motor drives—one is a 1 hp. dynam-



ically balanced ball bearing motor mounted directly on the grinding wheel spindle. A 7 in. diameter grinding wheel is standard equipment with this construction. The other consists of a 1 hp. dynamically balanced motor mounted on an adjustable bracket attached to the spindle housing with a tex-rope drive to the grinding wheel spindle. This construction takes an 8 in. diameter grinding wheel as the tex-rope drive makes it possible to provide the proper spindle speed for a wheel of that diameter.

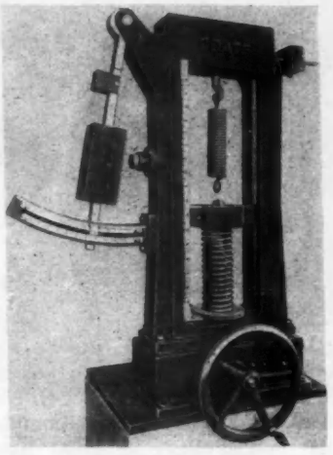
Heavy-Spring Tester of Pendulum Indicating Type

For testing heavy springs, such as coil springs for "knee-action," the Coats Machine Tool Co., New York, N. Y., is offering a new pendulum indicating Elasticometer designated as the type DN. A screw-operated crosshead, guided within the frame of the machine, bears down on compression springs, compressing them against a lower compression plate suspended from a single beam weigher scale that is located in the upper housing of the machine.

The lower compression plate is guided on each side in steel balls to prevent lateral forces set up in a spring under load from interfering with the free play of the scale. Rubber bumpers protect the weigher scale against sudden jerks or knocks.

The weigher scale consists of a single beam, from which are suspended the lower compression plate and upper tension hooks. A steel ribbon transmits the motion of the beam to the indicating pendulum. A detachable weight on the pendulum makes it possible to weigh weak springs with the same accuracy as strong springs. Consequently the machine has two load ranges, as indicated by the upper and lower scales of the arc.

Four sizes of the DN Elasticometer are made; the lower weigher scale of the smallest ranges from 0 to 650 lb. and of the largest from 0 to 6000 lb.



Area of baseplate ranges from 13 x 25 in. to 14 x 25 in.

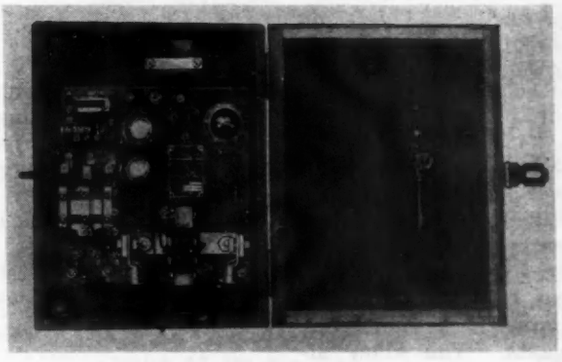
Improved Automatic Weld Timer

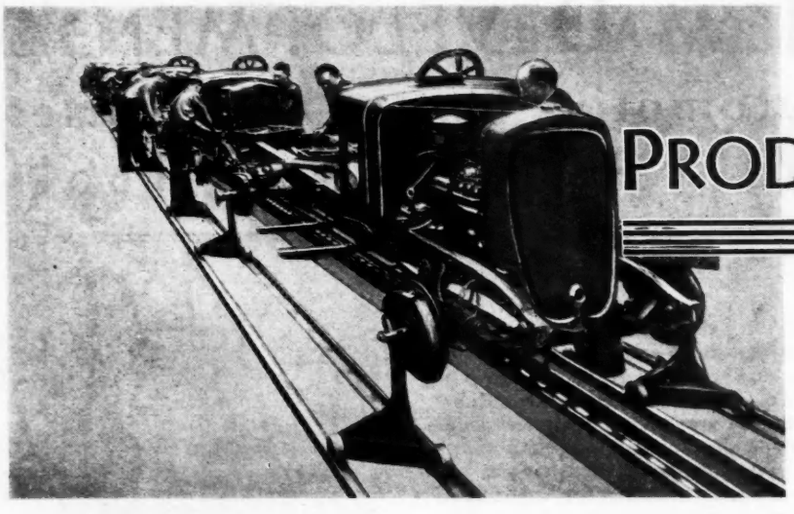
For use with resistance welding machines, The Electric Controller & Mfg. Company, Cleveland, Ohio, announces the Folio 2 EC&M Automatic Weld Timer.

Although operating on the same principle as the Folio 1 Weld Timer, namely, that of taking into consideration the many variables entering into the welding circuit and timing the weld with respect to the current flow, this timer is a great improvement over its predecessor. It contains less apparatus, the dust-tight enclosing cabinet is smaller and not as deep, and the operation of the timer is twice as fast as the previous one.

This faster operation not only makes it possible to produce many more welds per minute for a given material, but also is said to increase the number of different kinds and also the variety of thicknesses of metals which now may be satisfactorily welded.

In addition to the adjusting dial for varying time, the new control is also equipped with a means to provide a triple current range for a timer of given capacity. The change from one range to another is quickly obtained by inserting a plug into one of three receptacles located on the front of the panel.





PRODUCTION LINES

Hard Grades

Firth-Sterling has just issued some technical bulletins on stainless steel, blue chip high-speed-steel, and Circle C super high-speed-steel. Each bulletin gives succinct but complete details concerning physical properties, heat treatment, etc. Perhaps the most interesting announcement concerns two "hard" grades of Sterling stainless steels developed for purposes where high degree of hardness, resiliency and resistance to abrasion are required. Both grades require hardening and grinding to bring out their properties.

Artistic Design

What with the general emphasis on the aesthetic in autobody design, some of the younger industrial artists are doing a lot of sketching along automotive lines. We know one outstanding and successful designer who will probably do a high production job one of these days. Incidentally, he has some ideas on headlighting that might be well worth investigating.

Machinery Upped

Confidential bulletin tells us that despite lessened activity in many quarters machine-tool sales reported for August exceed the volume for June and July. Undoubtedly much of this increase may be credited to the new programs in a number of automotive plants. You know already about the plans at Packard, Plymouth, Pontiac, and elsewhere. Let no one say that the automotive industry has crawled into a shell hoping that things will be better. Instead, its leaders are doing their share to stimulate continued recovery—and more sales of automobiles.

L-B News

Volume 1, Nos. 1 and 2 of the *Link-Belt News*, a new publication, has just come across our desk. It's a small-sized newspaper devoted to applications of conveying and power-transmitting machinery for solving the problems of industry. Published monthly, the bulletin is intended to keep you up to date on new installations, new products, etc. Something that someone else has done may be what you're looking for. Are you a subscriber? You can be if you ask us.

Industry's Gems

Catalin, a cast phenolic resin, available in 200 standard colors from crystal clear to jet black is described in an unusual little booklet. Apart from the applications listed therein, the booklet is valuable for its presentation of data on weights and sizes of sheets, cylinders, and rods, available from stock.

New Use

Addition of aluminum borings and turnings to the packing powder in the annealing of thin iron and steel sheets has been suggested. The aluminum uses up any atmospheric oxygen enclosed in the boxes before luting and minimizes scaling; it should be replaced from time to time. —From *Aluminum News Letter* for September.

Almost 22,000

You will be as interested as we were to learn that your favorite publication (we mean A. I.) is read by 21,480 plus, every week. The count is the culmination of a research project that was in progress all last summer.

Unit Heat

An instructive bulletin on unit heaters for industrial use has been issued by Young Radiator. Its practical feature is a section devoted to design data—capacity ratings, methods of piping, installation dimensions. If you can use it ask for Young catalog No. 534.

For the Housewife

Under the heading "Good news for Housewives" the Consumers' Advisory Board of the NRA provides us with a comprehensive bulletin—"A Survey of the terms use in designating qualities of goods." Housewife—1934 model has wide interests as some of the chapter headings testify, to wit—gasoline, lumber, fuel oil, lubricating oil, automobile steels, fertilizers, and safes.

Internal and External

Landis Tool Co. gives the facts about its new line of internal and external hydraulic race grinders in a handsomely illustrated bulletin. Ask for Cat. G34, if interested.

Regulation

Pressure regulators and regulation problems in the field of oxyacetylene welding and cutting are thoroughly digested in a new booklet. 15 pages of interesting technical data by George M. Deming of the Air Reduction Co.

Controlled Atmosphere

What can't you do with controlled atmosphere electric furnaces. G.E. has just published a little booklet discussing the possibilities of this equipment in the modern plant. Brazing, annealing, hardening, and whatnot. It may pay you to skim through the book for ideas.—J. G.

MANUFACTURING MANAGEMENT METALLURGY